The Mining Journal
AND ATMOSPHERIC RAILWAY GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 551.---Vol. XVI.] LONDON: SATURDAY, MARCH 14, 1846. [Price 6d.

SALE OF SHARES.—GEORGE CARNE respectfully announces the TENTH PERIODICAL SALE FOR SHARES will be held at the AUCTION MART, BEDFORD-STREET, PLYMOUTH,

on MONDAY, the 16th March inst., at Six o'clock in the evening precisely, when, in addition to other very valuable lots, will be submitted, by order of the trustees, the mining interest of a gentleman recently deceased—comprising shares in

Dolcoath	West Caradon
Fowey Consols	Caradon Consols
Wheal Henry	Wheal Gill
Hallenbeagle	Wheal St. Cleer
Wheal Robina	Trewavas
The Providence Mines	Caradon Wheal Hooper
Wheal Norris	Wheal Sisters
Wheal Salusbury	Wheal Mary (Calstock)
Besore Mine	Tokenbury
Wheal Rose Consols	South Devon Railway
Wheal Anderton	Eastern Counties
An adventurer's share in Bottle Hill Tin Mine	Great Western
	Bristol and Exeter (thirds)

Wheal Concord. 1

TO BE SOLD, TWO HIGH-PRESSURE STEAM-ENGINES, entirely new—one 40-horse, the other 25-horse power—calculated at 35 lbs. pressure. These engines are very strong, having been built for dividing rolling machinery in an iron-work, and are not now required.—Application for price, &c., apply to E. H. Plumptre, Esq., Lamb-buildings, Temple; or, by letter, address "A. Z." Box 25, Sheffield Post-office. 2

MINERAL PROPERTY FOR SALE.—An ESTATE, containing COAL, IRONSTONE, FIRE-CLAY, and BUILDING STONE.—These have all been opened into and partially worked, and conveyed over a railroad and canal seven miles, to a port for shipment: 180 acres are freehold and 80 acres leasehold, for a long term, at a small fixed rent; 56 acres of freehold land, with a limestone quarry and kiln contiguous to the above, may be included or not in the purchase. 3

Application to be made, by principals only, to W. T. Meakin, Esq., 6, Albion-place, Blackfriars-road, London.

MINERALS IN LANARKSHIRE TO SELL, OR LET.—The MINERALS on the farms of GILL and HAYHILL, lying in the parish of East Kilbride, and county of Lanark, situated about seven miles south of Glasgow, and midway between the villages of Kilbride and Eaglesham. These properties are known to contain LIMESTONE and CLAYBAND IRONSTONE, which can both be wrought by mining. The ironstone on these properties was wrought and smelted in Clyde Iron-Works upwards of 50 years ago, but was discontinued, in consequence of the distance and difficulty of conveyance at that late period. The newly projected line of railway from Glasgow to Lesmahago will pass through the properties, and it is understood that a depôt will be formed at or contiguous to the properties, and will thereby afford great facility of transit. The estate extends to above 100 acres, and every facility in point of time will be allowed to prove it by searches and otherwise. 11

For further particulars apply to Dr. Alston, East Kilbride.

GLAMORGANSHIRE.—Fourteen Miles from CARDIFF.—TO BE LET, ON LEASE, THREE SEAMS of superior COAL, lying under 800 acres of land—through the middle of which the Taff Vale Railway passes. There is also a canal communication, by which this coal could be delivered at the port of Cardiff for 6s. per ton, all charges included. It is presumed this situation is not to be surpassed in eligibility, when the flat position, extent, and pure coking quality, of the coal are considered.

Inquire of Messrs. Crowder and Maynard, 45, Coleman-street, London; of Mr. W. P. Struvé, civil engineer, Swansea; or to view the premises, of Mr. David Davies, Gellywhyon, Newbridge, Glamorganshire. 5

VALUABLE WATER-POWER, on the River Wandle.—A most desirable PROPERTY, comprising the FREEHOLD COPPER ROLLING MILLS, HAMMER MILLS, FURNACES, REFINERY, FOUNDRY, and FACTORY, with very valuable water power, with a fall of about 5 ft. 8 in. on the River Wandle, in Garrett-lane, Wandsworth, Surrey, fully equal to between 70 and 80-horse power, all well inclosed, with a manager's dwelling-house, good garden, numerous workmen's cottages with gardens, and several valuable parcels of meadow land, containing altogether nearly 20 acres, most eligibly situate within one mile and a half of Wandsworth, in the county of Surrey, and about seven miles from London.—To be SOLD BY PRIVATE CONTRACT by Messrs. DRIVER, the above most valuable and desirable FREEHOLD PREMISES, exonerated from land tax, which have for nearly a century and a half, been worked by the Governor and Company of Copper Miners in England; but they are perfectly applicable to any purposes requiring water power. The premises comprise a convenient small dwelling house for a manager, with a most excellent garden; a building, about 98 feet by 70 feet, called the "Rolling Mill," and a very capital iron water-wheel, 18 feet diameter by 14 feet in width; a hammer mill, about 70 feet long, with two other water-wheels, one 15 feet and the other 12 feet diameter; a new building called the "Refinery and Foundry," about 85 feet by 42 feet, with three furnaces; stabling, sundry workshops, and a counting-house; an Artesian well, 165 feet deep, with 5-inch copper pipes; 12 workmen's cottages, and sundry parcels of desirable and valuable meadow land, containing altogether about 20 acres. The purchaser may or may not (as he pleases) take the machinery at a valuation; and in the event of his not taking it, the vendors reserve to themselves the power of selling the same by auction, or otherwise, on the premises, as per inventory.—To be viewed by tickets, which may be had at the company's offices, 57½, Old Broad-street, and of Messrs. Driver, surveyors and land-agents, 8, Richmond-terrace, Parliament-street, London; of whom further particulars may be known. 6

MINING PROPERTY.—CAPITALISTS who are disposed to INVEST in CORNISH and FOREIGN MINES, will find the present opportunity very favourable for so doing. From large sums having been lately diverted from such investments for railway speculations, standard mines are now selling at prices that will pay the purchaser 20 per cent. per annum for his outlay. There are also other mines that are on the eve of paying dividends, which can be recommended with confidence. 7

Applications to be made to Mr. JAMES HERRON, mining agent, No. 3, Adam's-court, Broad-street, London.

MINING OFFICES, REMOVED FROM 16, CORNHILL, to 1, THREE KING COURT, LOMBARD-STREET.—Mr. R. TREDINNICK (of Cornwall), having established PRACTICAL AGENTS and CORRESPONDENTS in every MINING DISTRICT, whereby he obtains early and accurate information respecting MINES, proffers his services to capitalists and adventurers in the PURCHASE and DISPOSAL of SHARES. Mr. Tredinnick has business to do in the following MINES:

North Roskear	North Pool
Wheal Seton	Andrew and Nangiles
West Seton	Wheal Bucketts
East Seton	South Trelawney
Trelawney	United Hills
Wheal Mary Ann	Grambler and St. Aubyn
East Wheal Crofty	Herodsfoot

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NOTICE TO THE PROPRIETORS AND SHAREHOLDERS OF MINES, SMELTING-WORKS, &c.

Messrs. MITCHELL and FIELD beg to inform the PUBLIC, that they have REMOVED from No. 5 A to No. 23, HAWLEY-ROAD, KENTISH TOWN, where they have erected a spacious LABORATORY, fitted expressly for the performance of all OPERATIONS CONNECTED WITH MINING.—Practical instruction to gentlemen in Assaying, Mineral Analysis, and Manufacturing Chemistry in general.

Assays and Analyses conducted as usual. 9

All communications to be addressed to Messrs. Mitchell and Field, assayers, No. 23, Hawley-road, Kentish Town.

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall. 10

PAYNE'S PATENT PROCESS FOR THE PRESERVATION AND IMPROVEMENT OF TIMBER, &c.—PAYNE and LODER beg to invite the attention of Engineers, Railway Companies, Architects, and others, to the ABOVE PROCESS, and to state that they are prepared to ERECT the necessary APPARATUS in any part of the United Kingdom, where the quantity is sufficiently large to cover the outlay of its removal.—Further particulars can be obtained at WHITEHALL WHARF, CANNON-ROW, WESTMINSTER, or at their other stations—

FLEETWOOD-ON-WYRE, LANCASHIRE, UNION WHARF, SOUTHAMPTON, and WISBEACH, CAMBRIDGESHIRE, GUILDFORD, SURREY. 11

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £5 to £10 extra. Gold horizontal watches, with gold dials, from 6 gs. to 12 gs. each. 12

DENT'S PATENT DIPLIEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

LONDON ASSURANCE CORPORATION.

ESTABLISHED BY ROYAL CHARTER, A.D. 1720.

The governors and directors of the London Assurance Corporation have greatly enlarged their system of life assurance, and invite public attention to their new prospectus.

The following rates will be found to bear comparison with those of any firmly-established and undoubtedly responsible office:—

ANNUAL PREMIUMS FOR THE ASSURANCE OF £100.

Age.	*PARTICIPATING.*	*NON-PARTICIPATING.*
16	£1 16 9	£1 12 7
20	2 0 2	1 15 11
30	2 10 8	2 5 11
40	3 5 1	3 0 0
50	4 10 7	4 5 7
60	6 12 5	6 5 11
65	8 4 11	7 16 9

13

The rates for all other ages, and a detailed prospectus, containing their very liberal conditions, and the rates under their nine other tables, may be had on application at their

OFFICES, 7, ROYAL EXCHANGE, CORNHILL—10, *REGENT-STREET*;

and of any of the corporation agents in Great Britain and Ireland.

FIRE ASSURANCES are effected at the LOWEST RATES, and MARINE ASSURANCES at the CURRENT PREMIUMS of the day. JOHN LAURENCE, Sec.

GREAT BRITAIN MUTUAL LIFE ASSURANCE SOCIETY, 14, WATERLOO-PLACE, LONDON.

DIRECTORS.

THE CHISHOLM, Chairman | WM. MORLEY, Esq., Deputy-Chairman

HALF CREDIT RATES OF PREMIUM.

The attention of ASSURERS is particularly directed to the Half Credit Rates of Premium, by which means assurances may be effected, and loans for short periods secured with the least possible present outlay, and at a less premium than for short terms only, and with the option of paying up the arrears and interest—thus becoming entitled to participate in the *whole of the profit of the institution.*

Extract from the Half Credit Rates of Premium.

Age 20.	Age 30.	Age 40.	Age 50.	Age 60.
£0 17 0	£1 1 1	£1 8 2	£2 1 0	£3 4 2

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Thus £1000 may be assured at the age of 30 by the annual payment of £10 10s. 10d. or the first five years.

The whole of the profits divided ANNUALLY among the members, after payment of five annual premiums.

An ample guaranteed capital, in addition to the fund continually accumulating from premiums, *fully sufficient* to afford complete security to the policy-holders.

Members assured to the extent of £1000 entitled (after payment of five annual premiums) to attend and vote at all general meetings, which will have the superintendence and control of the funds and affairs of the society.

Full particulars are detailed in the prospectus, which, with every requisite information, may be obtained by application to A. R. IRVINE, Managing Director.

STEAM TO INDIA VIA EGYPT, MALTA, ITALY, ALEXANDRIA, AND THE PENINSULAR PORTS.

PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA. 15

The Peninsular and Oriental Steam Navigation Company BOOK PASSENGERS for CEYLON, MADRAS, and CALCUTTA direct, by steamers leaving Southampton on the 20th, and for Alexandria, *en route* to Bombay, on the 1st of every month.

A steamer from Southampton leaves the 1st and 20th of every month for Malta, whence are steamers to Naples, Genoa, Civeta Vecchia, three times a month.

STEAM TO CORUNNA, OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR.

A steamer leaves Southampton on the 7th, 17th, and 27th of every month.

Apply at the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

COMPRESSED AIR-ENGINE COMPANY.

No. 5, PALL-MALL EAST, LONDON. 16

(PARSEY, PATENTEE.)

The exhibition of the WORKING MODEL, at No. 5, Pall-mall East, will CLOSE on SATURDAY, the 21st March inst., before which day applications for shares should be made.—Numerous inquiries having been made by applicants for shares in this company, as to the extent of their liability, the directors feel that the number of shares already taken, justifies them in stating, that no further call, beyond the deposit of one guinea per share, will be made. By order, D. E. AUSTIN, Secretary.

PILBROW'S ATMOSPHERIC RAILWAY AND CANAL PROPULSION COMPANY.—Completely Registered.

DIRECTORS.

The Right Hon. the Earl of ESSEX, Chairman.

The Right Hon. the Earl of Bessborough | Lieutenant-Colonel Gilliess
G. B. Bolton, Esq. | F. J. Lambert, Esq. 17

Dr. J. G. Hewlett, Resident Director

Directors of Railway and Canal Companies are informed that this company is now READY to GRANT LICENSES FOR, or SUPERINTEND the LAYING DOWN of LINES on PILBROW'S ATMOSPHERIC PRINCIPLE.

The advantages offered by this method of propulsion are cheapness, increased speed, and safety, over every other existing system, whether locomotive or atmospheric. Leakage is entirely avoided, the tube being buried. Also an immense saving, as well in the construction as in the working of lines, not requiring tunnelling, levelling, or embankment. The surface requires but little more preparation than for the common roads.

The application of this method of propulsion to Canal Navigation will be attended with incalculable advantages.

Its superiority, efficiency, and simplicity, will be demonstrated, and explanations given, at the offices of the company, 6, King William-street, London-bridge.

CHARLES COLLINS, Secretary.

SEYSSEL ASPHALTE COMPANY—CLARIDGE'S PATENT.—ESTABLISHED MARCH, 1838,

FOR WORKING THE MINERAL ASPHALTE ROCK OF PYRIMONT SEYSSEL,

A Bituminous Rock, situate on the Eastern side of the Jura.

PRINCIPAL DEPOTS:

ROUEN, MARSEILLES, AND STANGATE, 18

Surrey Side of Westminster-bridge, London.

The ASPHALTE OF SEYSSEL has been EXTENSIVELY USED, since March, 1838, for the following useful purposes:—

FOOT PAVEMENTS (public and other)	MALT-HOUSE FLOORS
KITCHEN FLOORS	PIGGERIES, &c.
BASEMENTS—where it is essential to keep damps from rising	COVERING OF RAILROAD AND OTHER ARCHES
GARDEN WALKS and TERRACES	The only effectual mode to prevent the percolation of water, which also renders it very appropriate for the
CARRIAGE DRIVES	LINING OF TANKS, FISH PONDS, DRAINS, &c. &c.
COACH-HOUSES and STABLING	
DOG KENNELS	
BARN FLOORS	
TUN ROOM FLOORS	

Note.—The Seyssel Asphalte Company are prepared to enter into special contracts for the execution of railway work, and other public works of magnitude.

I. FARRELL, Secretary, Seyssel Asphalte Company, Stangate, London.

UNIVERSAL GAS LIGHT COMPANY.

Capital £100,000, in 5000 shares, of £20 per share.—Deposit 2s. per share, in accordance with the Act.—(Provisionally Registered.)

N.B.—*An Allotment of Shares will take place on the 16th of March next ensuing.*

Names of the Working Committee, in whose hands the affairs of the Company are placed until fully registered.

William Stiles, Esq.	Professor Ryan, M.D., LL.D.
Captain Kenyon	Robert Nicholson, Esq.
Henry Francis, Esq., patentee	Dominique Causse, Esq.
Joseph Peplow, Esq.	Henry Ault, Esq.
Charles Brooke, Esq.	John Kissick, Esq. 19

SOLICITOR—J. F. W. Fesenmeyer, Esq.

BANKERS—Sir Claude Scott, Bart., and Co.

This company is formed for the purpose of carrying out, and bringing into general use, an invention (secured by letters patent) for an improved manufacture of gas, of a superior quality, and at much less expense than the usual cost, by an apparatus so simple in construction, and so compendious in form, as to be available in any building or situation where the ordinary supplies of gas are not accessible.

Full details in prospectus, which may be had at the offices of the company, 159, Drury-lane, with forms of application for shares, and where may be seen the apparatus at work, and the brilliancy of the gas exemplified. Mr. William Nicholson, Secretary, to whom must be made all communications, post free.

UNIVERSAL GAS LIGHT COMPANY.—CONTRACTS TAKEN for LIGHTING UP, with a SUPERIOR GAS, and at a REDUCED RATE—towns, villages, lighthouses, dockyards, hospitals, theatres, public offices, manufactories, printing-offices, prisons, barracks, railway stations, asylums, schools, and other large buildings, where the ordinary gas is not accessible.—Letters to be addressed to Mr. William Nicholson, secretary, 159, Drury-lane. 20

GRATIS.—A LIST of PATENTS and REGISTRATIONS for the MONTH of FEBRUARY, may be had (gratis) on application at the PATENT OFFICE, 89, CHANCERY-LANE, or will be sent free, by post, on receipt of two stamps, together with a Prospectus, containing charges and necessary information for PATENTS and REGISTRATIONS.—Further particulars may be had by applying to Messrs. Barlow and Le Capelain, the Patent Office, 89, Chancery-lane. 21

RYE AND THOMAS, MINE AGENTS AND DEALERS IN STOCKS, RAILWAY AND OTHER SHARES, 80, OLD BROAD-STREET, LONDON, AND AT LISKEARD, CORNWALL. 22

JAMES LANE, SHARE AGENT, *HALL OF COMMERCE, LONDON.* 23

WILLIAM TRENERY, DEALER IN RAILWAY AND MINING SHARES.—ESTABLISHED TEN YEARS. *OFFICES, No. 50, THREADNEEDLE-STREET, LONDON.* 24

WILLIAM FOX AND SON, No. 53, CASTLE-STREET, LIVERPOOL, have always on SALE PIG-IRON, RAILWAY BARS, CHAIRS, and IRON of every description.—TIN PLATES, WIRE, &c. 25

MESSRS. LAMOND, SMALE, and LAMOND'S PUBLIC SALE OF RAILWAY SHARES, &c., are HELD, at the Hall of Commerce, Threadneedle-street, every TUESDAY and FRIDAY, at One o'clock precisely.—Orders received until Four o'clock of the day prior to sale.—London, March 6, 1846. 26

A CIVIL ENGINEER AND MINING AGENT, in good practice, is in WANT of a PUPIL.—For particulars apply, by letter, to "S. E. B." care of the Editor of the *Mining Journal*, at the office, 26, Fleet-street, London. 27

CARADON UNITED MINE.—The committee of management of the Caradon United Mine hereby give Notice, that they have this day appointed WILLIAM D. BOASE, Esq., of Liskeard, PURSER of the said MINE, and request that all outstanding accounts may be immediately sent to him for adjustment.

By order of the committee, WATSON & CUELL.

St. Michael's-alley, Cornhill, London, March 6, 1846. 28

CORNUBIAN MINING COMPANY.—Whereas, at a Special General Meeting of the shareholders of this company, held at the office of the company, No. 44, Finsbury-square, on the 2d of February, 1846, certain resolutions were then passed for dissolving this company: Notice is, therefore, hereby given, that, at another Special General Meeting of the shareholders of this company, held at the same place, on the 2d of March inst., such resolutions so passed on the 2d February last were confirmed, and that the same COMPANY now is DISSOLVED accordingly.

All persons having CLAIMS upon this company, or its directors, in respect thereof, are requested to send in the particulars of such claims, addressed Peter Stainsby, Esq., 44, Finsbury-square, London, in order that the same may be examined and discharged. Dated this 3d March, 1846.—44, Finsbury-square, London. 29

NISTER DALE IRON COMPANY.—PREFERENCE SHARES.—This company has now commenced its operations, and it is proposed to declare a dividend on the 31st December next. A limited number of shares, of £25 each, remain to be disposed of; and the directors are empowered to guarantee the holders of such shares a DIVIDEND, at the rate of £5 per cent. per annum, upon the amount of capital paid up on such shares, for the term of three years next after they are subscribed for.—Applications to be addressed to the directors, at the office of the company, 10, Old Jewry Chambers, London, where the form of application, and all information respecting the company, may be obtained. 30

PATENT GALVANISED IRON COMPANY.—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the shareholders in this company will be HELD at the offices, in Mansion-house-place, on Tuesday, the 31st of March inst., at Two o'clock precisely, when the report of the directors and accounts will be submitted, and a dividend declared.—At this meeting two of the directors retire by rotation, but who, being eligible, offer themselves for re-election. Any proprietor intending to offer himself as a candidate for the office of director, must give 14 days' previous notice to the secretary, at the office. S. VINCENT, Sec.

3, Mansion-house-place, London, March 5, 1846. 31

NEW ROSS, CARLOW, AND KILKENNY JUNCTION RAILWAY.—Notice is hereby given, that this Bill having passed the Committee on Standing Orders in both Houses of Parliament, and the second reading in the House of Lords being appointed for Friday, the 13th inst., the committee of management have, pursuant to the provisions of the subscribers' agreement, made a CALL of ONE POUND per share, to be paid on or before the 28th day of March inst., to meet the additional deposit required by the Standing Orders of the House of Lords, previous to the third reading of the Bill in that House.

The subscribers are, therefore, required, on or before the 28th day of March inst., to PAY the said call of £1 per share, to one of the under-mentioned bankers, to the credit of the company, for which a receipt will be given by the bankers, and, on such receipt and the scrip being forwarded to the office of the company, a certificate of the payment will be endorsed on the scrip; and, in default of payment of the call at the time specified, the committee have power to declare the shares in respect of which such default shall be made, and the deposit already paid thereon, absolutely forfeited.

By order, GEORGE T. BROWN, Secretary.

BANKERS.

London—The Commercial Bank of London, Lothbury. 32
Dublin—The National Bank of Ireland, and its branches.
Liverpool—The Bank of Liverpool.
Manchester—The Manchester and Salford Bank.
Edinburgh—The Edinburgh and Glasgow Bank.
Leeds—Messrs. Beckett and Co.

12, Haymarket, London, March 12, 1846.

A VIEW OF THE COAL TRADE OF GREAT BRITAIN AND BELGIUM is now ON SALE, at Messrs. Simpkin, Marshall, and Co.'s, booksellers, London—price 7s. 33

By MATTHIAS DUNN, Mining Engineer, Newcastle-on-Tyne.

In the press, to be published in a few days, a SECOND EDITION of

WALL'S IMPROVEMENT IN THE MANUFACTURE OF METALS, with considerable additions. 34

London: E. Palmer and Son, 18, Paternoster-row, and all booksellers.

Just published, Part I.,

COMBUSTION of COAL, CHEMICALLY & PRACTICALLY CONSIDERED. With coloured plates. 35

By CHARLES WYE WILLIAMS, Esq.

London: Simpkin, Marshall, & Co., and J. Weale—*Birmingham:* Wrightson & Webb.

TO ENGINEERS, RAILWAY CONTRACTORS, MINING AGENTS, IRONMASTERS, AND OTHERS REQUIRING FINE GREASE for MACHINERY and AXLES of every description.—JOSEPH PERCIVAL'S IMPROVED ANTI-FRICTION GREASE is—after trials on machinery and axles of every kind where constant friction is kept up—admitted to be the most useful, economical, and best preparation of the kind ever offered to the public. 36

References to scientific and practical men can be given, and testimonials shown of its great excellence.—Samples forwarded on application at the manufactory, Green-street, Wellington-street, Blackfriars-road, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

SMART'S ELLIPTICAL CONVEX METALLIC PADDLE FLOATS, FOR PROPELLING STEAM-SHIPS.—The very great superiority of this invention over the common float, in *all points*, having been fully proved by its use on various steamers of from 90 to upwards of 200-horse power—and applications being made for licensing several iron steamers, from 70 to 300-horse power, the patentee confidently recommends it to the Government and the public generally.

Its superiority consists, in beauty of appearance, stability, durability, its property of greatly reducing vibration and undulation, inexpensiveness, powerful agency in checking a ship in chance of collision—and what is of the greatest consequence, giving an immense increase of speed. All these must have a powerful influence, not only on steam proprietors, but more especially on the minds of the steam-travelling public. 37

These Floats can be easily applied to any wheel.

Applications for license (for which a fee of 10s. per horse-power is charged) to be made to the patentee, Mr. Robert Smart, 5, Grenville-place, Hotwells, Bristol, or his agents.

UNDER THE PATRONAGE OF ROYALTY AND THE AUTHORITY OF THE FACULTY.

KEATING'S COUGH LOZENGES.—A remedy for all disorders of the pulmonary organs—in difficulty of breathing—in redundancy of phlegm—in incipient consumption (of which cough is the most positive indication) they are of unerring efficacy. In asthma, and in winter cough, they have been seldom known to fail.—KEATING'S COUGH LOZENGES are free from every deleterious ingredient; they may, therefore, be taken at all times, by the most delicate female and by the youngest child; while the public speaker and the professional singer will find them invaluable in allaying the hoarseness and irritation incidental in vocal execution, and consequently a powerful auxiliary in the production of melodious enunciation.

Prepared and sold in boxes, 1s. 1½d., and tins 2s. 9d., 4s. 6d., and 10s. 6d. each, by Thomas Keating, chemist, &c. No. 79, St. Paul's Churchyard, London.

Sold by Sangor, 150, and Dietrichsen and Hannay, 63, Oxford-street; Blake, Sandford and Blake, 47, Piccadilly.—Sold wholesale by Barclay and Sons, 95, Farringdon-street; Edwards, 67, and Newberry, 45, St. Paul's Churchyard; Sutton and Co., Bow Churchyard; and retail by all druggists and patent medicine vendors in the kingdom. 4

Miller

RECENT TESTIMONIAL. Dover, January[illegible]

SIR,—I have great pleasure in informing you, that the 2s. 9d. box of your last forti-COUGH LOZENGES, had at your house about three weeks since, has[illegible] of a bad cough, to which she has been subject many years, especia[illegible]MILLER, Jun., son. A considerable portion of the lozenges are on hand, nor [illegible] night, had any occasion to use them Your's respe[illegible]

Mr. S. Marten, Dover.

PALTRINERI'S NEW APPLICATION OF POWER.—It has been a long established mathematical axiom, and a well-known mechanical law, that in the application of all motive power, there is a *reaction* in proportion to the forces employed, which reaction constitutes an opposing force, and to a certain extent neutralises the effect of the power employed. Although this law has been long known, and its principle well understood, we believe no attempt has yet succeeded in getting rid of its neutralising effect. D. Paltrineri has not only accomplished this, but, by his mechanical arrangements, makes the reaction contribute to the power obtained—and thus, in every case, obtains the maximum effect which any machine is capable of affording. He exhibited at the Society of Arts, on Wednesday evening last, four beautiful models, illustrative of the principle; a locomotive engine to be propelled by the turbine; a magnetic rotary engine; a model to show the power of the spring in raising weights; and an upright shaft and gear for horse or man power. In each of these, the *reaction* was made to increase the power obtained. The turbine, it is well known, except under some few circumstances, is the least advantageous of all hydraulic engines, in proportion to the column of water employed; but, by introducing a second turbine within the first, and geared together in such manner that they revolve in contrary directions, the reaction of each contributes to the action of the other, and the maximum effect is produced. In the magnetic rotary engine, he employs the same principle; a set of steel armatures revolve in one direction in the centre, while around them another set rotate in a contrary one, producing a corresponding increase of effect. The model, showing the action of the spring in raising weights, contained a spiral spring, so fixed that it could be drawn out from one end only, leaving the reactive power to be lost on the other; or both ends could be extended—the reaction of each thus exerting a force on the other. In the first case, a weight was raised to nearly the heighth of the table on which the model was placed, and the index of the spring indicated 75; with both ends of the spring in operation, double the weight was raised to nearly three-fourths of the heighth of the former experiment, and in rather more than half the time; the index marking 120. Now both ends of the spring being in action at once, would have the power of two springs—of half the length of the whole one in action in the first experiment—acting in unison, and consequently, double the weight of the first experiment, according to known mechanical laws, ought to have been raised to half the heighth in half the time; but, in this case, where the reaction is taken advantage of, the above result—viz., three-fourths of the height, in rather more than half the time—shows a gain of power of at least 20 per cent. This result astonished the scientific gentlemen who witnessed it, and Mr. Scott Russell humorously termed it, "a puzzler." In the shaft for horse or man power, the platform on which they walk revolves in a contrary direction to the harness shafts, being geared together to have that effect, and all the re-active pressure of the feet in a contrary direction to which the body moves, actually assisting in the motion given to the machine, the utmost effects possible are obtained.

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*** This is most important, as the ponderous nature of the rack jack is one of the main objections to it, requiring *two*, and often *three*, men to carry one of moderate power; wherens, one of the improved jacks (capable of lifting five tons), can be borne with ease by *one* man.

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REVIEWS OF THE WORK. 41

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REVIEWS OF THE WORK. 42

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At home for consultation daily, from nine till two, and from five till eight; and all letters, immediately replied to, if containing the fee of £1, for advice, &c.—9, Bedford-street, Bedford-square, London.

ON THE NATURAL HISTORY OF COAL.—No. III.

BY WILLIAM ONION, ESQ., BIRMINGHAM.

Mr. ONION commenced the third lecture of his interesting course, by stating that the subject was the nature of "faults" and other dislocations of strata, and the influence they exert upon the search for coal, which he proposed to illustrate by models taken from sketches of existing coal-fields in the north of England. The first model represented a series of strata, consisting of limestone, coal, and sandstone, lying horizoutally, and, therefore, as originally deposited, and undisturbed. But various forces have acted upon the rocks of the carboniferous period, dislocating and contorting the strata—in some instances strata that were once continuous being separated. The lecturer, then, by means of the model, explained the meaning of the terms slip dyke, lode of the Cornish miner, vein of the lead miner, and the fault, or trouble, of the collier, and observed, that when a miner approached the place where the coal seam was forced out of its place, if he found that the coal had fallen downward he would call it a "downcast" or "jump down;" if it was elevated, he would call it an "up-cast" or "jump-up." These terms, however, had no place in geology since the same "fault" would be called by both names, according to the, side on which the miner approached it. It was generally thought that the strata had fallen down on that side to which a "fault" inclines, but, although this rule held good in the north, it was by no means applicable to all cases in other mining districts. If a precipice were left on one side, in the case of a "fault," it would be easy to discover the existence of such a phenomenon; but it is generally denuded, the upper strata being swept away, so that the surface is rendered even. The next model showed a dislocation to the extent of 50 feet, an extent by no means rare, as dislocations were found varying from a few inches to 5000 or 6000 feet. "Faults" were found sometimes separated by large tracts of country, and inclining in various and contrary directions; and in other cases occurring with regularity, like a flight of steps. The next model illustrated a series of "faults" on the northern side of the River Tyne, disturbing the strata to the amount of 43, 30, and 50 feet. The model also showed the deceptive appearance of a tract of country of that nature; it might be supposed, judging from the number of seams which rise to the surface, to contain an abundance of coal, although the reverse was the fact. Coal is not worth working until the miner arrives at some distance below its exit, or place of "bassetting out." This showed the necessity of scientific knowledge to all engaged in mining operations. The next model showed nothing but shales and sandstone at the surface, but several seams of coal underneath—the usual appearance of the richest coal fields.

Mineral veins, the lecturer remarked, differ but slightly from "faults" in nature and origin. Large quantities of lead ore are found intersecting the coal measures in the north. Those dislocations which might be termed "simple faults," were merely checks to the continuity of a stratum, without any substance foreign to the nature of the stratum intervening. In most cases, however, the cracks, or separations, were filled with other materials, such as clay, detritus of surrounding rocks, or trappean or other rocks, which had been exuded from the interior of the earth in a heated state. In such cases, the strata for some distance from the point of contact were altered; the coal being converted into coke or anthracite, or the seam destroyed, and its place filled by the trap, which then became regularly stratified. At Barrow Hill, in this neighbourhood, an amygdaloidal greenstone had forced its way through the coal, filling the place of what was called the "heathen seam," and altering the nature of the thick coal, (which lies some yards above it,) so as to make it worthless. Shafts were being sunk through this greenstone, in order to obtain the white ironstone underneath it, which, so far from being injured, was found to be of superior quality. Since the protrusion of the trap, certain other disturbing forces had affected the strata, for it also was found to be fractured. In most instances the "faults" were filled with various mineral substances, constituting the "lodes" of Cornwall, or the mineral veins of the lead mines. The lecturer proceeded to explain, minutely, the occurrence of these veins, by reference to four models. There could be no doubt but that electricity had been one of the principal agents in the production of these veins or "lodes." A wide field of enquiry had been opened, and it was to be hoped that great additions would be made to their knowledge of this part of the science. As to the cause of "faults," the lecturer proceeded to observe, that there were many well-authenticated instances of the irruption of granite and other volcanic substances producing contortions of the strata; and that it was probable that equally great power had been exerted in other cases in which the surface had not been broken. When they considered the mighty effects produced in the present age by the action of earthquakes and other causes, they were led to wonder at the regularity that exists. This was a proof that the earth was formed under the eye of an all-pervading INTELLIGENCE. The lecturer quoted the opinion of a writer in the *Quarterly Review*, that the agents employed in producing dislocations had been earthquakes of different degrees of violence, acting at various intervals of time, through a long period.

If it were not for "faults," many valuable seams of coal, which now rise nearly to the surface, would have been too deep to be accessible. If, too, the shale and grit, which alternate with the coal, were continuous, the quantity of water which would find its way through would be so great as to baffle all the powers of machinery to draw it out. By the interposition of "faults," the water was admitted only in comparatively small quantities. At Gosforth, near Newcastle, a shaft on the west side of the 90 fm. dyke was abandoned, on account of the rush of water into it; but, only a few yards from it, on the other side of the dyke, a shaft was sunk to the depth of 200 fms. without obstruction from water. Thus caution was necessary in working, since a miner working on the dry side of a "fault," might, with a few strokes of his pick, make way for the water to rush in upon him. "Faults" were of service by causing a flow of springs on the surface along the line of the "fault;" and they also prevented the spread of fire, should the seams of coal ignite, by the shale and other incombustible materials abutting upon the coal. In the words of Dr. Buckland, they found here "a system of wise and benevolent contrivances, prospectively subsidiary to the wants and comforts of the future inhabitants of the globe."

Mr. Onion proceeded to speak of the vegetable origin of coal, a doctrine generally admitted. The most abundant remains of vegetables were found in the shales and sandstones interstratified with the coal. From a series of microscopical experiments, Mr. W. Hutton fully concurred in the opinion of Mr. Witham, that in varietics of coal taken indiscriminately more or less of vegetable structure could be discovered. The lecture quoted the celebrated passage from Dr. Buckland, in which he describes the fossil flora of the mines of Bohemia. The manner in which these immense masses of vegetable matter had been collected together, was a point which had not yet been settled with any degree of certainty. The hypothesis of Macculloch, Hutton, and others, was that the plants grew and died on the spot where the coal fields exist, which was thus analogous to a bog. Another idea was, that the coal-field was the estuary of a large river, such as the Mississippi, into which the plants were swept by the current and engulfed. The chief difficulty, however, on both hypotheses, was to account for the accumulation of vegetable matter over such large areas. At one time the latter theory was much more generally received than now, when submergence is considered the rule, and drift the exception. The lecturer then proceeded at great length to explain the grounds on which the different hypotheses rested, giving the preference, in conclusion, to that of submergence. As regarded the time occupied in the formation of the carboniferous rocks, Mr. Onion remarked that much discrepancy existed among geologists. Dr. Macculloch had remarked that "the great tract of peat near Stirling had taken 2000 years to form, for the registry was preserved by the Roman works below; this was but a single bed. Did we allow 200,000 years for the production of the coal series of Newcastle—1800 ft.—with all its rocky strata, it would not be too much. A Scottish lake does not shoal at the rate of more than half a foot in a century; but the Newcastle district presented a vertical depth of 3000 ft. in the old red sandstone alone. No sound geologist would accuse the computer of excess if he allowed 600,000 years for that formation only." That this calculation, which includes the old red sandstone as a member of the coal series, was not far from the truth there could be no doubt, although the sandstone might have collected at a much more rapid rate than Dr. Macculloch supposed. The deposits of sand from the Ganges and other great rivers were very much greater than those of any European streams. The independent calculations of a Mr. Maclaren produced a similar result. It would require about 1000 years to form a bed of coal one acre in extent, and one yard thick. It should be remembered, too, that the coal only forms one-thirtieth part of the entire series of beds in the group.

The annual consumption of coal throughout the British Empire has been variously estimated, differing in amount from 15,000,000 to 30,000,000 tons per annum, but the larger estimate may be considered at the present day as nearer the true quantity, from the vast increase since the calculations were made, in the consumption of coal, arising from the increased, and still increasing, demand for this fuel, in the manufactories of our kingdom. Of the 30,000,000, about 23,000,000 to 24,000,000 tons were consumed in Great Britain, the remainder in Ireland. The export of coal, cinders, culm, &c., to foreign countries, amounted in 1828 to 228,681 tons, upon which the duty paid was 34,540*l.*; since 1828 up to 1843 it has been on the increase; the total of coal and culm exported in 1843 equalled 1,547,297 tons, the duty thereon being 132,609*l.*—being an increase in quantity of nearly 1,500,000 tons of coal, and bringing to the revenue an addition of upwards of 98,000*l.* In 1842, the declared value upon the coals, &c., exported from the ports of England, Ireland, and Scotland, to foreign countries and British possessions abroad, was 734,000*l.*; the total quantity of coal, culm, &c., being about 2,000,000 tons. In 1843, the declared value upon the coal, cinders, and culm, exported, as given by the Parliamentary returns, was 690,424*l.*; 1,866,211 tons being shipped; of this quantity 462,291 tons went to France, 148,197 tons to Prussia, and the remainder to Russia and other countries. From the port of Newcastle alone 815,434 tons were exported, while Sunderland and Whitehaven yielded their usual produce. In 1841, 1842, and 1843, the quantity of coal raised and shipped from the ports of Newcastle, Sunderland, and Stockton, were in each respective year, 1,328,445 tons, 1,411,975 tons, and 1,346,018 tons, of which about 100,000 tons were sent to British possessions, the remainder going to foreign countries. The total quantities of coal shipped from various ports in England, Ireland, and Scotland, to other ports in the United Kingdom was in 1842 and 1843 upwards of 7,000,000 tons. The market of London alone receives a supply of from 2,500,000 to 3,000,000 tons, for the conveyance of which about 8000 ships are employed in the course of a year, which make repeated voyages. But, while estimating the quantities of coal conveyed by our own and foreign ships, we must not forget that an immense number of our largest commercial and manufacturing towns, as the great towns in Lancashire, Nottinghamshire, Warwickshire, &c., are entirely supplied with fuel by means of inland navigation, or by land carriage, according to their proximity to, or distance from, the collieries in the county where they exist. As regards the actual quantities conveyed by canals and land carriage, a correct estimate has not been made. In 1816, a committee of the coalowners of Northumberland and Durham, gave, as the result of their inquiries, that 10,808,046 tons were annually so sent; but, during these last 20 years, the quantity must have considerably increased. The town of Sheffield alone is said to receive for manufacturing and domestic purposes more than 500,000 tons annually, drawn from collieries on the spot, and it was estimated in 1837 that the iron-works of Great Britain, most of which are situated in the places where coal is obtained, receive every year, for smelting the ore, and converting the raw material into bars, plates, &c., 6,000,000 tons; and if, in 1845, the quantity used for this purpose be estimated at double, we shall not be above, but rather below, the mark. Both in 1842 and 1843, above 30,000 tons were brought into London by inland navigation. In the above rough estimate, we have not taken into consideration many other towns, as Manchester and Birmingham, where immense quantities of fuel are used in the numerous and important manufactories carried on there, and we may conclude that from 18,000,000 to 20,000,000 tons of coal are conveyed by inland navigation, &c., and used annually in the United Kingdom, while 7,000,000 to 10,000,000 tons are conveyed by ships—making the aggregate of 30,000,000 tons, as the estimated annual consumption of coal in England, Ireland, and Scotland. The difference of price between coal at Newcastle and London is not a little curious, from exemplifying the immense difference effected by the repeal of the export duty on coal. Thus, in 1813, the duty then being 7s. 6d. per ton, and the price per ton of coal at Newcastle 13s., it could not be sold in London, after all expenses were defrayed, at less than 42s. per ton. In 1824, the duty being 4s. per ton, and coal fetching the same price—viz., 13s. at Newcastle, the amount per ton it could be sold in London at was 33s. 4d. per ton. Since the duty has been altogether repealed, in 1831, the best Newcastle coal can be purchased in London, at prices varying from 19s. to 22s. per ton, and even, in some instances, selling as low as 15s. The last and only remaining matter to be touched upon, concerning the statistics of coal, is the number of persons employed in the prosecution of this branch of our national industry, and it will, no doubt, be deemed incredible by many, when they are informed that upwards of 200,000 persons are employed in this branch of trade, a number which will be more readily understood, when we say that it is nearly equal to the population of Birmingham. An enormous waste of coal at the pit had been caused by the enactment, directing that coal should be sold by measure in London, as the coalmasters were only able to dispose of the large coal to the dealers. The law has been now altered, but still there is much small coal wasted in this manner. The effect of this must be to destroy the beds near the surface, and thus render the coal more difficult to obtain, and more expensive. In regard to the question of the probable duration of the supply of coal, the lecturer considered that sufficient data had not been collected as to the actual extent of the coal-fields, to warrant an opinion.—He concluded amid loud applause.

WALKER'S RIDDLING MACHINE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Knowing your great desire to give publicity and countenance to any invention calculated to facilitate commerce, I respectfully request the enclosed testimonials, and remarks on my Patent Riddle, may be inserted in your journal. ROBERT WALKER, Colliery Viewer.

Gerard's-bridge Colliery, 12th March, 1846.

[COPY.]

To Mr. ROBERT WALKER, Gerard's-bridge Colliery, St. Helens.

Dear Sir,—I have great pleasure in annexing you copies of testimonials on the efficiency of your Patent Riddle, received from John Fletcher, Esq. of Ladyshore Colliery, near Bolton-le-Moors, and Mr. George Forster, the colliery viewer at Standish Colliery, near Wigan.

Such testimony, I feel assured, will be properly appreciated by all those who know the respectability and long experience of the parties who have tried your riddles; and I cannot doubt, that they will, ere very long, be generally used by all extensive coal proprietors, both in this and the adjoining counties. The one I sent to Messrs. Hird, Dawson, and Hardy, of the Low-moor Iron-works, Yorkshire, is not (I believe) erected yet: therefore, could not expect a testimonial from them at present; but I may say, that Mr. Dawson, of the above firm—who ranks high for his general knowledge of such things, and in whose judgment I would place the most implicit confidence—expressed, when here, his decided approval of its principle and utility.—Congratulating you on your success,

I remain, dear sir, yours, obediently and truly,
ROBERT DAGLISH, Jun.

[COPY.]

Ladyshore Colliery, near Bolton, Sept. 9.

Sir,—After three months' trial of "Walker's Coal-Riddling Machine," I have great pleasure in stating, that I consider it a valuable invention, that it does its work thoroughly, and with a very small amount of breakage. (Signed) JOHN FLETCHER.

To Mr. R. Daglish, Jun., St. Helen's Foundry. 43

[COPY.]

Standish Colliery-office, near Wigan, Nov. 6.

Sir,—Pardon my seeming neglect, in delaying so long to give you my opinion relative to the working of "Walker's Riddling Machine," which Mr. Taylor has had erected at the Standish Colliery. It has been at work about six weeks, and I have given to it a great deal of my time and attention, so that I might ascertain its utility over those screens we have had in use for some time past. I must confess that it far exceeds all other methods of screening, that I have had the opportunity of seeing in the coal districts of Northumberland, Durham, Yorkshire, and Lancashire. I find there are many advantages to be derived from the adoption of the cylindrical riddle, over those in general use: its revolving motion completely prevents the breakage of the coals, and makes a complete separation of the coal from the slack. Besides, there is a great saving in time and labour, and I have no doubt but one riddle, properly erected and worked, would effectually screen four hundred tons of coals and slack in ten hours. When such advantages are to be derived from the adoption of this valuable invention, may we not reasonably expect, that "Walker's Patent Riddling Machine" will eventually surmount all prejudice, and supersede all other modes of riddling and screening coals now in use.

I am, sir, your obedient and humble servant,
To Mr. R. Daglish, St. Helen's Foundry. GEORGE FORSTER.

In addition to the foregoing testimonials, Robert Walker begs respectfully to invite an inspection of two of his riddling machines, which have been at work at Gerard's-bridge and Cowley-hill Collieries, near St. Helen's, Lancashire, for upwards of thirteen months. Applications will be promptly attended to, by addressing me at St. Helen's, or Mr. Robert Daglish, of St. Helen's Foundry, Lancashire.

(Signed) ROBERT WALKER, Coal Agent, St. Helen's.

THE COAL TRADE.—It is reported that the influential firm on the London Coal Exchange, of which Sir James Duke, M.P., is head, have made arrangements with the trustees of the Countess of Durham, the Hetton Coal Company, and the North Hetton Coal Company, for the consignment to their house of the whole of the coals shipped to the London market by these important coal-owners. It is also said, from efforts making by certain coalowners, that the London coal trade is on the eve of great changes, the principal of which will be the sale of coals without the agency of coal factors, though it is certain in the present depressed state of the coal trade many difficulties stand in the way of this plan being carried into successful operation.—*Durham Advertiser*.

WOODCROFT'S SCREW PROPELLER.—Mr. Woodcroft obtained a prolongation of his patent for six years, on application to the Court of Chancery, on 11th inst.

ON COAL MINING OPERATIONS.

ESSAY UPON THE VARIOUS SYSTEMS PRACTISED IN THE CONDUCTING OF COAL MINES, AND OF THE METHODS EMPLOYED IN COUNTERACTING THE EFFECTS OF INFLAMMABLE AIR. BY MATTHIAS DUNN, ESQ., MINING ENGINEER.

The chief portion of this paper was compiled during the latter part of the year 1844; but, owing to various causes, it was not submitted to public observation until the beginning of last year, when I read an essay, deduced from it, before the Manchester Geological Society, but which essay has never yet been printed, so that I have complied with the request of the talented editor of the *Mining Journal*, to permit its public notice through that channel. The subject is, in itself, so important in all its bearings, that, I flatter myself, it carries with it a tolerable recommendation, and the only fear that I entertain, of its being found uninteresting, is my inability to handle it in such a manner, as to prevent that technicality which is absolutely necessary, from rendering its perusal tedious. I am the more induced to doubt its success, when I reflect, that it will come under the supervision of many persons, both conversant in science and also practical mining, and whose judgment may differ with the conclusions at which I arrive. But, when I consider that coal mining constitutes one of the most important trades of this country—that it is indispensable to the maintenance of that flood of commerce, which spreads its influence, not only over Great Britain, but the whole world—that coal mining forms the basis of the manufacturing celebrity, which so peculiarly characterises this country—and that in proportion as the science of practical mining is made to advance, so will an ample and cheap supply of coal be insured; and, further, when I consider that, in proportion as the art of ventilation is improved, so will the lives of the numerous workmen be protected, their health improved, and their hardships alleviated—and that the causes of humanity, and commercial prosperity, are to be advanced, by the development of mining science—then do I take courage in imparting the results of a long experience, in the hopes that it may advance a step towards an amended system of colliery management, and tend to draw that attention, which may induce the adoption of measures better calculated to prevent that fearful loss of life, which has hitherto prevailed. If, therefore, in the course of these remarks, I shall appear to challenge, or condemn, certain established practices, let not such observation, I entreat, be set down to any invidious feeling; but, rather, by an exposition of present defects, that something may be done towards the establishment of an amended system.

In commencing the subject, I may premise, that the universal and undeniable object, in the working of a coal mine, is for the purpose of raising the greatest produce of large coal at the least cost, and it is a matter of curious reflection, to witness the innumerable shades of practice which exist, under the self-same circumstances, of depth, thickness of seam, nature of roof and floor, quantity of water, inflammable air, &c. In one quarter of the country "long wall" is the system observed, whereby all the coal is progressively wrought away, the vacant spaces being filled up with timber, small coal, and the rubbish of the mine. In another part, the same seam is wrought by means of pairs of narrow wichets, run up at intervals, leaving between each pair a huge block of coal, to be afterwards taken out. Another method, is to form the main preparatory passages as wide as the roof will bear, making the blocks of coal only half as large as before described, thereby obtaining a much larger proportion out of the preparatory workings. Then, with respect to ventilation, in many cases, nature is left entirely to itself, no artificial means being employed to maintain any express current of air, which is permitted to stagnate, or to pass up or down respective shafts, as winds, water, or some other contingent circumstance shall operate upon it—the column being inefficiently guided into particular parts by loose earthen stoppings, or imperfect checks of canvas, &c. In many cases ordinary fire lamps are applied, sometimes to the bottom, oftentimes in a recess constructed at a certain part of the upcast shaft; others, again, employ water falls, or air pumps; and, in Belgium, they prefer a spiral ventilator, driven at great speed by a steam-engine. Many of the large collieries, of the Newcastle district, are fitted up with large furnaces, situated at a proper distance from the bottom of the upcast shaft, maintaining a constant and considerable heat—the air column being guided through the workings by plastered stoppings of brick or stone, and the air conducted into the minuter workings by means of doors and wooden partitions, called brattices; others, again, build tubes, or chimneys, at the top of the upcast pit, within which is applied a ventilating fire, or furnace. Again, with respect to the volume, or quantum of air, to be insured to any given mine, we find that, in many cases, no sort of rule, or reflection, is applied, as between a thick coal and a thin one, a fiery seam, or otherwise; the proportionate sizes of the downcast and upcast shafts being totally disregarded, as well as the mode of applying the air current to the removal of gas, evolved from the new, or accumulated in the old, workings, by the exhaustion of the coal, and the destruction of all ventilating processes. The result of this want of system is a constant recurrence of accidents, partial or general; and it becomes a common remark, that, since the introduction of the safety lamp, less of that care or pains, which were before practised, have been bestowed on the maintenance of good ventilation; while, on the other hand, persons have rather given way to negligence and disregard, trusting everything to the safety-lamp—the very construction and management of which, and on which protection is supposed mainly to depend, being greatly overlooked. Thus it happens that, from an inefficiency of system, many mines acquire the character of fiery, when the adoption of certain good and well-devised schemes would render them comparatively safe—a reflection carrying with it onerous responsibility. There is, again, much difference of policy in the height of the roads, many of which require artificial labour, as well as the various modes, adopted to convey the coal from the working places to the top of the shaft. In one colliery they use sledges between the hewer and the main level; the tubs, or baskets, being transferred to carriages, fitted up with wheels, oftentimes disproportioned to the weight of the load, or height of the seam of coal—the same want of proportion frequently applies to the tub, or basket, using the same sort of vessel to the working of an 8 feet coal, which they do to one of 3 feet. The mode of conducting the vessel to the top of the shaft is subject to many varieties of practice—some without guides at all, others with guides of wood or iron; the landing at the top being accomplished by pulling on to the heap-stead by a running platform, with catches for resting the cages, or by diagonal spears, by which the tub is delivered on to the bank apart from the top of the pit.

The engines for drawing the coals are also seen under the most varied forms of application, some having only one axis for fly wheel and rope planes; others, a second motion, the rope planes being upon the said second shaft; another variety is, one crank shaft and two rope shafts. The position of the engine is, in some districts, contiguous to the pit, in which both ropes work; in another district, the pits are 100 yards apart, with the engine between, a rope down each shaft, and, not unfrequently, a third or fourth rope down other shafts. Some collieries use ropes of hemp, or wire; others, chains of various forms of manufacture. In some districts, it is thought material to screen, or separate, the coals into round and small by mechanical means—in others, it is done by hand, riddling underground and above, and many do not attempt to sell in any other state than as they are produced from the mine. The dealing with water, too, is like the other departments, various in the extreme. One district sanctions horizontal spears and cranks, and another direct pumping by means of beams—one sinks its pits to the dip, another to the rise, raising the water by means of lying spears, or other means of forcing. In one district the common lifting pump is universal; in another, the plunger and force pump are as general. In some quarters all the water is raised by one end of the beam; in another it is raised partly by one end, and partly by the other. The stopping back of shaft water by tubbing is general in the northern district; but it is only partially practised in any other. In the working of mines, having considerable inclination, one practitioner works by slope passages, with or without horses; whilst another confines the explorations, either to levels or inclined planes, self-acting to the rise, or worked by underground engines, if brought from the dip; and, until very lately, the coals in the edge seams of Mid-Lothian were conveyed down the steeps upon the backs of females. In the apportioning of the work, many coal-owners include, in one price, every department of labour, from the hewer to the bottom of the shaft, another subdivides it into two, and a third into three departments—each having different terms, and quite independent of the other. The use of horses is also arbitrary; in many collieries they convey, by manual labour, 600 or 800 yards; whereas, in others, they apply horses, whenever the average distance exceeds half of it. Contractors, or butties, manage the underground operations in some parts, including even the keeping of horses; whilst, in others, the proprietor holds everything in his own hands, with separate bargains to each, employing suitable agents and workmen, who are made responsible for the well-being of every department. Again, in some collieries, we find the coal brought to the pit bottom by means of corves or tubs, placed on sledges, or rollied along the sole or bottom of the level or passage, communicating with the workings—while in others, wooden rails, or constructed of iron, are used—thus facilitating the work, and in the end reducing the cost. In the letting of mines too, a corresponding discrepancy exists. In the north of England, rent is paid by the ton; in Scotland and North Wales, it is levied at a proportion of the amount sales at the top of pit—whilst in Lancashire and Yorkshire the coal is sold by the acre a foot thick. In South Wales, however, there is usually a rate or royalty charged per ton, which, however, varies in the different localities—in some instances, a minimum rental or royalty is required—while there is no strict rule as to the weight of the collier's ton. In short, there may be said to be no uniformity of principle in coal mining, except in the extending of the principal levels in pairs, with a thin pillar of coal between them, for the purpose of laying open the field of coal.

I have endeavoured, in the foregoing remarks, to explain that there prevails in the business of coal mining, an extraordinary variety of practice in every department; that many of these practices must, of necessity, be founded upon erroneous and imperfect principles; and I flatter myself that I have also shown that, amidst the multitudinous variety of circumstance, there must of necessity be a wide field for the exercise of practical acquirements, as well as of sound discretion and theoretical science; for, in many cases, the mode of dealing with a specific subject is attended with such irreconcilable difference of circumstance, that there must be a right and a wrong involved in the consideration—therefore, the question is naturally raised, as to whether or not one general system could be made uniformly applicable to this subject, and, if so, to which system is the merit due?

It would ill assort with the experience of a practical person to assert that any one system could be made applicable to all, and every of the various circumstances of coal mining; it is the want of scientific application, of suitable principles to suitable cases, that I am endeavouring to contend against—therefore, as we cannot apply one principle to all, I will endeavour to illustrate my notion of the most perfect system, as applicable to the most usual circumstances of coal mining, which, for the purpose of illustration, I will particularise as follows:—1. Thickness of seam, 4 ft. good roof, but producing water sufficient to stop dip working.—2. Depth from surface, 150 yards of difficult sinking.—3. Rate of inclination, 1 in 10.—4. Discharge of inflammable air, considerable.—5. Area to be commanded, 100 acres, all lying to the rise.—6. Two pits; one downcast, the other upcast.—7. Daily quantity of coals required, 300 tons.

Now, this example, although exhibiting a favourable specimen of a mining field, yet involves the necessity for *good ventilation*, *good railways*, and *good arrangements* in every respect—otherwise, the stipulated quantity cannot be uniformly raised, nor could the area be commanded, since the length on each side from the shaft may be stated at 700 yards from dip to rise, equal to 1400 yards. Now, it would be out of the question to attempt to work such an area as this by long wall—viz., by driving away the levels from the shaft, and simultaneously commencing to work away all the coal, maintaining railways up through the wastes, surrounded upon all sides by the discharge of inflammable air, and the pressure from above—therefore, if that plan was at all to be contemplated, it would call for at least four or five additional shafts; indeed, so many and insurmountable would be the difficulties, under the above specification, that long wall must yield to one or other of the pillar systems. According to the ordinary Lancashire principle, then, this said field of coal would require to be intersected throughout by passages, varying from 4 to 6 ft. in width, leaving the blocks of coal in oblong shape, and containing from 500 to 600 square yards each, to be afterwards worked away. Notwithstanding that the specified area would be progressively prepared, and successively exhausted, yet the system carries with it a series of disadvantages, amongst which the following may be enumerated:—1. These narrow wichets, or ways, cost from 1s. 6d. to 2s. 6d. per yard, and are exceedingly difficult to ventilate, on account of the length around the pillars, the size of which pillars operates most detrimentally against the production of large coal when taken away, and calls for a great and unnecessary length of tramways; whilst it enhances the difficulty of applying such tramways to the face of the working places. —2. From the unnecessary size of these blocks of coal, increased hazard and difficulty are experienced in working them away; because, after the pressure of the roof comes on, a greater area than necessary requires to be borne up—while the workmen, with the timber employed, are removed to an inconvenient distance from the point of danger, arising from the sudden falls which necessarily take place; the coal is also by such added pressure, more damaged than otherwise—in short, the whole working is made to consist of narrow places, or large pillars, both of which have a tendency to produce coal of a reduced value.

Having, therefore, pointed out what, in my humble opinion, constitutes the objectionable parts of these modes of working, I feel bound to go into the description of a system, which I think possesses advantages over them, and which may be made applicable to almost every variety of situation. The foundation of this system is the procuring of as great a proportion of coal as possible, before any crush or pressure is brought on; therefore, no sooner are the narrow levels extended into the field of coal than the working commences by "boards," varying in width from four to five yards, according to the nature of the coal and roof, the pillars between being also regulated by the depth from surface, and other similar considerations, but which, for this purpose, I shall call 20 yards by 8 yards; these boards are holed into each other by a narrow drift, at intervals of from 20 to 30 yards each, so that this mode of preparatory working carries away the following proportion of the mine—viz.:

$$\left.\begin{array}{l} 5 \times 22 = 110 \\ 2 \times\ 8 = 16 \\ \hline 126 \\ \hline 5+8=13 \\ 22+2=24 \end{array}\right\} 312$$

That is, $\frac{126}{312}$ parts of the mine are carried away in the first instance—the proportion of the narrow work consisting of only one-eighth of the wide work; the coal produced from the five-yard boards being, without pressure, and wrought by regular processes of cutting, wedging, blasting, &c., is of a character superior to that wrought out of pillars of whatever size; and although the said board working bears a price of labour, perhaps one-third more than the pillar working, yet it is always considered the most profitable portion of the process, because, in every other respect, the working is cheaper, and the coal of more intrinsic value. In addition to the above, this system enables a colliery to enter into a profitable working at once, whereas the long and expensive system of strait work operates in a manner entirely the reverse.

[*To be concluded in next week's Mining Journal.*]

WARLICK'S PATENT FUEL.—We have, on several occasions, noticed this invention, and, in the *Mining Journal* of June 15, 1844, published the specification of the patent. A company was subsequently formed, which, we are happy to hear, has been progressing most favourably, and which may now be considered firmly established—the first meeting of the shareholders being announced for the 19th inst., when, we trust, they will receive such a statement of affairs as will show that they have embarked in a promising undertaking. The fuel, which is formed principally out of small coal at the pit's mouth, with pitch, tar, and other combustibles, undergoes chemical preparation and dry distillation, and is found of high evaporative power for steam-engines, and, from its cleanliness, brightness in burning, and economy, is getting into high repute for all domestic uses. We have before us a Parliamentary return of reports from the comptroller of steam machinery, and the storekeeper general, with extracts from the logs of engineers of her Majesty's steam vessels, on the efficiency and other qualities of Warlick's patent fuel, in all of which it is proved that it is excellently adapted for steam boiler furnaces. Its economy, as compared with best coal, is from 20 to 25 per cent.; it makes but little clinker or ashes, and the fires wanted seldom cleaning out.

WRIGHT'S IMPROVED RAILWAY SPRING.—We have been favoured with a short description of a new spring for railway carriages, the invention of Mr. Wright, of the City-road, which consists of a box containing two horizontal spiral springs, placed behind each wheel; rods, attached to these springs, are connected with two levers, which work on a moveable guide over the axle, and so adjusted that they give to the slightest motion of the carriage. The subject is expected to come before the Society of Arts on an early day, when we shall give a more full description.

We are happy to find that the appeals made to the Wilts, Somerset, and Weymouth Railway Company, on behalf of the noble Roman Amphitheatre, at Dorchester, and the timely interference of the British Archæological Association, have been successful—Mr. Brunel having promised "to twist the line of railway so as to avoid" this old memorial of days long past.—*Sherbourne Journal.*

PALPITATION OF THE HEART, SHORTNESS OF BREATH, AND GENERAL DEBILITY, CURED BY HOLLOWAY'S PILLS.—A gentleman of the name of Spencer, residing for the present in Sackville-street, Dublin, and who was for many years in the East India Company's service, fell into ill-health, and was even at death's door, the action of his heart being frequently so violent as to cause, when lying down, the very bed to shake; and again, from shortness of breath and debility, he could scarcely walk 20 yards. This gentleman may now be seen out hunting, in the fullest enjoyment of health, having been cured by the surprising virtues of Holloway's justly-celebrated pills, which are sold by every chemist and at Professor Holloway's establishment, 244, Strand, London.

GEOLOGICAL SOCIETY OF CORNWALL.

We have before us the 32d annual report of the council, and much do we regret to find that the society may be said only to have existence in name—for the paucity of communications during the past 12 months being only seven in number, while the donations to the museum and library together only extend to 18, are in themselves sufficient evidence of the apathy which pervades the county, whose interests are so deeply involved in the questions which form the subjects of the society's investigations. It is from an earnest desire to promote the views of the institution, and at the same time to encourage research, that we are thus disposed to notice the report, and not from any desire to detract from the value or importance to be attached to its labours, if such be properly directed and encouraged by the examples of others. A few words, by way of introductory remark, with a brief review of the president's address, and the papers, will lead us to the more immediate subject to which we most earnestly direct the attention, not only of Cornishmen, but all those interested in the metallic produce of the county—geology being the parent science which leads to the development and determination of the existence of minerals, when aided by practical and judicious investigation, it being now clearly demonstrated that the coal measures are never found in particular formations, while certain channels of ground—and moreover, having a reference to the series to which they belong—are the hand-posts, or direction for the miner; while the philosophical inquiries which are undertaken by men of science, and the several papers read at the numerous scientific institutions with which this country abounds, at once demonstrates the value to be attached to investigations of this nature. In looking at the title page, we find that the society is under the patronage of her most gracious Majesty and Prince Albert,—while with a president, vice-president, treasurer, *two* secretaries, curator, librarian, and council, numbering 22 in all, we find seven papers, —the whole occupying some 40 pages. The first, which is a report on the fossil geology of Cornwall, is one of the legitimate papers which come under the objects of the society, and will be read with interest,—while we shall take an early opportunity of transferring it to our columns: the second is a short notice, occupying two pages, treating on the Itabira and Santa Anna Mines in Brazil, by Mr. W. J. Henwood. The author admits the "meagreness of this brief notice," and we only regret that the paucity of papers should have rendered it incumbent on the council to give insertion to a paper, the main object in doing which must have been to fill up space. The next paper under notice is on the remains of a submarine forest, by Joseph Carne, Esq., the treasurer: the fourth treats on the fossil geology of Cornwall, to the extent of a page and a quarter, not one third of which treats on the subject—at the same time being accompanied by *one* specimen in illustration. No. 5 is a communication from Sir C. Lemon, Bart., president of the society, "On the Mining Laws of France, by M. Migneron,"—a translation made in the year 1835, and on a previous occasion noticed by the hon. baronet. We need hardly say, that whatever interest may be attached to a paper of this nature, as affects our Stannary Court or mining jurisprudence, yet it is somewhat out of place in a publication of papers submitted to the Geological Society of Cornwall, while it may be a valuable addition to its library, and may safely be deposited in the archives without much apprehension of its being frequently disturbed. This paper occupies alone as much space as the other six,—and thus, we think, a fair judgment may be formed of the insignificance of the whole, reflecting (as it does), we must say, discredit on the county, and its officers. A paper on earthquakes and atmospherical changes, narrating instances at Montreal, Cornwall, Lake Erie, and Chatham, *may* be intimately connected with geological inquiries, we will assume, but with a county so rich as that of Cornwall, as regards its mineral produce, and the opportunities afforded of exploring the rocks and strata opened upon in pursuit of ores, we cannot but again express our disappointment, and regret at the result of the past 12 months. A short paper, on the occurrence of gold in a cross course in Cornwall, by J. Garby, Esq., occupying a whole page, closes the papers. We will now direct attention to the statistics of the society, and close our notice with a reference to the president's address, to which we have already adverted. It appears, then, that there are 66 honorary members, 84 ordinary members or subscribers, and 30 associates—thus 180 gentlemen, connected with the society, who have in the aggregate contributed one translation of 20 pages, and six papers or articles, occupying in the whole a like space.

The donations to the museum, with two exceptions, may be said to be more fitted for a mineralogical cabinet, embracing copper ores from Australia, and sulphuret of iron, native pitch, and quartz crystals, with galena. The 11 donations to the library consist of *Lindly and Hutton's Fossil Flora*, presented by the president—a valuable work; *Proceedings of the American Philosophical Society*; *Reports of the Cornwall Polytechnic Society*; *the Royal Institution of Cornwall*; *and the Truro Institution*; with *Lyell and Faraday's Report on the Explosion at the Haswell Collieries*; *Mawes' Mineralogy of Derbyshire*, one or two reports from Brussels, and some odds and ends too insignificant to require notice. The treasurer's account shows a balance brought forward of 150*l.* 16s.; subscription of the Prince of Wales, 20*l.*, and Prince Albert, 10*l.* 10s.; sale of copies of transactions, 5*l.*, and the sum of 65*l.* 2s. from ordinary members—making a total of 251*l.* 8s. The expenses on the other side, amount to 99*l.* 6s. 5d.,—leaving a balance in hand of 152*l.* 1s. 7d. The only outlay during the 12 months, in prosecuting the objects of the society, being confined to 10*l.* 5s. It is under these circumstances, and with such patronage and resources, that we call upon Cornishmen, "One and All," to aid the society, if not by their subscriptions in a pecuniary sense, at least to render their annual reports more interesting and worthy of the county, by subscribing some papers, which may be worthy of being printed, with the society's transactions. Were this done in would effect much good, as the example so set would doubtless be followed, and thus tend to the encouragement of a society, the labours of which are well calculated to promote the interests of Cornwall in more than one sense.

In closing our remarks, by referring to the president's address, we regret to learn that, during the past year, not one name has been added to the list of the members. The president observes—"I am sorry to say that the plan of offering premiums for communications from the miners, is *still without any result*; I regret this, and am quite at a loss to account for it;" and, again—"Geology has not, that I am aware of, received any contribution from the hand of a Cornishman, since the publication of our last report," except a paper read at the *Polytechnic* meeting by Mr. R. W. Fox; and he very significantly adds—"*Beyond* our county this has been a year of considerable activity," a great number of important papers having been read; and, by way of hint to Cornishmen, he further observes—"Cornwall, which was a few years ago supposed to be destitute of organic remains of any kind, has lately been found to be rather rich in them." The address may be consulted with advantage and pleasure by those who feel an interest in the science, and with this remark we close our notice.

PATENTS RECENTLY GRANTED.

[*From Barlow and Le Capelain's List.*]

A. T. Forder, Leamington Priors, Warwick, for an improved pump, or engine, for raising and impelling inelastic fluids, and producing motive-power.

G. Howell, Larkhall-lane, Clapham, for coating with a metal the surface of articles formed of copper, or copper alloys, or iron, whether wrought or cast.

M. Rimington, gent., Rufford-row, Islington, for certain improvements in obtaining and applying motive-power.

G. H. Bovill, Millwall, Middlesex, engineer, for improvements in the manufacture of iron.

A. Etienne, gent., Hatton-garden, for improvements in the construction of railways, railway carriages, &c., and in the means of preventing accidents on railways.

J. Pilbrow, Tottenham, C.E., for certain improvements in propelling on land and water.

H. Highton, Rugby, for improvements in electric telegraphs.

E. Chesshire, Birmingham, for improvements in apparatus to be applied to railway carriages, to reduce the prejudicial effects of collisions to passengers in railway carriages.

S. Brown, gent., Gravel-lane, Surrey, for improvements in gas engines, and in propelling carriages and vessels.

T. F. Griffiths, Wolverhampton, for improvements in stamping and shaping sheet metals.

W. G. Taylor, cotton spinner, and W. Taylor, labourer, Halliwell, Lancaster, for improvements in consuming smoke, and economising fuel.

T. Clarke, Hackney, engineer, M. Freeman, gent., Sutton, and J. Varley, Poplar, engineer, for certain improvements in obtaining and applying motive-power, parts of which are applicable to the regulating and controlling of fluids.

J. P. Budd, Ystalyfera Iron-Works, Swansea, improvements in the manufacture of iron.

A. Smith, Princes street, Middlesex, engineer, for improvements in coating or covering metals for the purpose of preventing oxidation.

G. Stephenson, Tapton-house, Chesterfield, and W. Howe, Newcastle-upon-Tyne, mechanic, for an improvement in locomotive steam-engines.

W. Wharton, superintendent at the Euston-square station of the London and Birmingham Railway, for certain improvements in straps and bands.

J. Nasmyth, gent., Arundel-street, Middlesex, for certain improvements in engines, or machines for obtaining and applying motive-power.

N. F. C. Desbois-Sorres, gent., Rue Saint Pierre Montmartre, France, for improvements in preparing and burning fuel.

J. C. Robertson, Fleet-street, London, C.E., for improvements in nail-making machinery.

E. Nisbet, Esq., London, for certain improvements in locomotive engines and railways.

G. A. Thompson, gent., Connaught-terrace, Hyde-park, and J. Wright, Holborn-bars, mechanic, for improvements in propelling vessels.

T. M. Deare, Stockport, engineer, for certain improvements in machinery, or apparatus applicable to the furnaces, or fire-places, of steam-engines or other boilers.

Mining Correspondence.

ENGLISH MINES.

BARRISTOWN.—March 6.—The 18 fm. level end east and west look very much the same as for some weeks, worth from 55*l.* to 60*l.* per fm. each; the pitches at this level continue to improve. In going south the lode in eastern end, on middle lode, is still poor. We have suspended Nangles shaft, and the end east of it, in consequence of the increased feeder of water, but hope to resume operations again here in a month, when the surface water decreases. The contracts for March are as follows:—Engine-shaft, former contract, six men; flat-rod shaft, sinking under 18 fm. level, former contract, nine men; 18 fm. level end west, tribute 5*l.* per ton, four men; eastern end, 2*l.* 10s. per fm., and 4*l.* per ton, six men; sinking winze under 12 fm. level, west of flat-rod shaft, 6*l.* per fm., six men; driving cross-cut north, 18 fm. level, 2*l.* per fm., two men; sinking footway shaft, 4*l.* 15s. per fm., six men; cross-cut 24 fm. level, south from engine-shaft, 3*l.* per fm., four men; eastern end, on middle lode, 2*l.* per fm., six men. Tributers, 22 men, at prices from 4*l.* to 5*l.* per ton.—T. ANGOVE.

BEDFORD UNITED.—March 10.—At Wheal Marquis the lode in the 80 fm. level east is 18 in. wide, composed of spar and mundic, with spots of copper ore in places. The lode in the 70 fm. level east is 3 ft. wide, composed of gossan and ore, worth about 10*l.* per fm.; in the stopes, in the bottom of this level, the lode is worth 14*l.* per fm.; and in the winze, in this level, the lode is 2 ft. wide, producing saving work. The lode in the 58 fm. level east is 2½ ft. wide, and worth about 8*l.* per fm., a very kindly lode indeed. The 47 fm. level west, on the south lode, is suspended for the present. At Ding Dong, the lode in the 24 fm. level west is from 3 ft. to 4 ft. wide, producing good stones of tin, but not rich. At Wheal Tavistock, Phillip's engine-shaft is 7 fms. 2 ft. below the 85 fm. level, the lode is 2 ft. wide, producing good stones of ore. The lode in the 35 fm. levels, east and west, is from 2 to 3 ft. wide, producing some good stones of ore, altogether very promising. We expect to put the engine on south lode to work the latter part of this week.—J. PHILLIPS.

CALLINGTON.—March 9.—In driving west from Johnson's engine-shaft, at 112 fm. level, we have cut the part of the lead lode, which is to the north of a slide, the south part being hove. We have not yet seen the same: it is rather small just at this point, composed of spar, iron, and silver lead ores, letting out a great deal of water. In the 100 fm. level, driving south, the lode continues productive, opening ground that will set at one-third tribute; in the north end the lode has not been taken down. The ends at the 90 fm. level, both north and south, continue to open good tribute ground. At the north mine, in the 90 fm. level south, the ground we are driving through will sett at 6s. in the 20s. In the north end, the lode and water continue just the same as last week. The 80 fm. level is opening ground, that will set at 10s. in the 20s. The copper lode at this level, driving west, looks very promising, producing copper ores. The 70 fm. level, both south and north, are driving through tribute ground.—J. T. PHILIPS.

CARADON UNITED.—I beg to send you a report of this mine: we are now down in our engine-shaft 22 fms. 1 ft. 0 in., and are in the solid granite rock, and giving 21*l.* per fm. for sinking—expect to sink about 1½ fm. per month. We have just cut a large branch in our shaft, dipping south (towards the lode), it is about 18 in. wide, composed of gossan, spar, with portions of iron, and kindly. We expect to intersect one or two more branches before we see the lode; accordingly, as I saw the dip of the lode 7 fms. deep, we shall not have it in our shaft until we are down 50 fms. A more kindly lode than this I have not seen in all this district at that depth; but, we are not altogether dependent on this lode, as we have several more to the south of this; the furthest in the Torr is no more than 58 fms., and two are very kindly from 2 to 3 ft. wide, and by the time our shaft is down 80 fms., we shall have two lodes to the north of our shaft, and two very near us to the south, and we have 21 fms. from the shaft to the north boundary; it is most likely we shall have the north lode at least 120 to 140 fms. in depth. Then comes our other lodes: if we drive to cut the north lode at the 30 fm. level, I expect to have about 6 fms. to cross-cut, and, if our ground continues firm, I believe the lode will make a good appearance at that depth. In Penhall, we have now harder ground in our adit, but still in killas, and have just cut a branch, or a lode, but as yet have only just seen it. It appears we have several lodes before us here, and I recommend still to continue the adit, as it will come in full 35 fms. to the top of the hill.

CARADON WHEAL HOOPER.—March 10.—Our shaft is 21 fms. below surface, the men having sunk 3 fms. this last four weeks, and are now sinking at the rate of 6 ft. per week; the ground continues to be more favourable for sinking as we get down, and is a beautiful blue killas, which is congenial for copper; if it continue, we shall get down to our anticipated 30 fm. level in about 10 weeks, where we shall, in driving north and south of the shaft, about 20 fms. each way, intersect from four to five lodes; we have cut through another branch in the shaft, from 8 to 10 in. wide, composed principally of gossan, mica, peach, prian, mundic, with some spots of copper ore.—J. SEYMOUR.

EAST TAMAR CONSOLS.—March 9.—At Whitson, in Hitchin's engine-shaft, we have cleared the 46 fm. level south 18 fms., where the appearance of the lode is just the same as in the level above. I expect, in a few fms. driving, we shall have the same shoot of ore which was sunk on in the bottom of the 36 fm. level, as the orey ground dip south. The 36 fm. level north is a very promising lode, 2 ft. wide, producing good work. We have dropped our lift to-day 4 fms. under the 46 fm. level. I hope by the latter end of the week I shall be able to report the depth of the mine. At Furzehill, in the stopes south of the shaft, in the 30 fm. level, the lode is 20 in. wide, with good saving work. In the 30 fm. level north we have cleared and secured 8 fms., but no appearance of whole ground yet. The pitches are looking just the same as last week's report. We have shipped, on Saturday last, the 7th instant, 40 tons of silver lead ore.—B. ROBINS.

GUNNIS LAKE.—March 10.—At Chilsworthy, in the last week's report, it was stated that Bailey's engine-shaft was 4 fms. 1 ft. under the adit level, when it should have been 4 fms. 3 ft. The shaft is now 4 fms. 4 ft. under the adit, and the lode is 2 ft. wide, composed principally of gossan—ground hard and troublesome. In addition to the lodes already cut in costeaning, another has been met with of a very promising character, it is as large on the back as some of the other lodes, although increasing in size and in depth. We are still costeaning in a southerly direction in search of the other lodes. We have commenced an adit on the lode south of Wheal Hingstone, alluded to in my last, in which the lode is 3 ft. wide, composed of gossan, iron, and spar—very kindly. —W. RICHARDS.

HARROWBARROW OLD MINE.—March 11.—The engine was set to work on Monday last: by Tuesday morning the water was in fork as deep as the lift, since that time we have prepared the shaft at that depth, and have now dropped another 12 fms.; hope to have the mine dry in a few days.—B. COOKE.

HAWKMOOR.—March 10.—The south engine-shaft is 19 fms. 1 ft. below the surface—lode small and poor. The western engine-shaft is 17 fms. 1 ft. below the surface—lode about 1 ft. wide, composed of spar, capel, and mundic, with spots of ore in places. The lode in the 15 fm. level, west of Hitchins's shaft, is divided by a horse of killas; the branches, two in number, are about 8 in. wide, composed of spar and capel; the lode in this level east is 2½ ft. wide, composed of spar and ore, producing saving work.—P. RICHARDS.

HOLMBUSH.—March 10.—The ground in Hitchins's shaft, sinking below the 110 fm. level, is still hard. We have commenced rising above the 120 fm. level, against Hitchins's shaft; the ground in this rise is also hard. In the 110 fm. level, west of Hitchins's shaft, the lode is 15 in. wide, and worth 15*l.* per fm.; the stopes in the back of this level, west of Hitchins's winze, we have set on tribute, at 5s. in the 1*l.*; the stopes, west of the sump winze, we have likewise set at 6s. 8d. in the 1*l.* In the 100 fm. level, west of Hitchins's shaft, on the north part, the lode is 15 in. wide, and worth 25*l.* per fm; in the 100 fm. level west, on the south part, the lode is 10 in. wide, producing stones of copper ore. We have opened about 6 fms. in length on the lead lode, and have for the present suspended operations northward, until we have communicated to the level above, for which purpose we have set six men to rise above the level on the eastern part of the lead lode, after the accomplishment of which we shall then be in a proper position to stope the ground west on the copper lode, and north on lead lode, should it prove productive above the back of the 100 fm. level; we are likewise driving south, on the eastern side of the lead lode, at this level, by six men; the lode is composed of prian, spar, and strings of lead—our principal object being to intersect the Flapjack lode, and to drive east on it towards the great cross-course, as well as to prove the lead lode. We have driven 3 ft. 6 in. south of the 100 fm. level, on Flapjack lode, and in this short distance have intersected many branches of mundic, ore, and spar, all of which are underlaying south, and the level is wet indeed. In the 90 fm. level, driving west on the north part, the lode is heaved south by a small cross-course; in the 90 fm. level, driving south on the lead lode, the lode is 2½ ft. wide, composed of flookan and spar, with large stones of copper ore scattered throughout, the lode similar to those found in the level below, previous to intersecting the copper lode. We have holed the 62 fm. level, and have commenced driving south in search of the lode, carrying a part of the cross-course only. In the rise, in the back of the 80 fm. level, against Bray's shaft, the lode is very small and poor.—WILLIAM LEAN.

STRAY PARK.—March 7.—With great respect we beg to hand you the following report on these mines. In the 70 fm. level, the lode is 14 in. wide, yielding 2 tons of ore to a fathom, worth 6*l.* per ton. In the 80 fm. level, the lode is 4 ft. wide, yielding 6 tons of ore to a fathom, worth 6*l.* per ton. In the winze sinking below the 80 fm. level, the lode is 13½ ft. wide, yielding 6 tons of ore to a fm., worth 6*l.* 10s. per ton. In the 90 fm. level, the lode is 2½ ft. wide, yielding 4 tons of ore to a fathom, and worth 6*l.* per ton. In the winze sinking below the 90 fm. level, the lode is 2 ft. wide, yielding 8 tons of ore to a fathom, worth 5*l.* 10s. per ton. In the 100 fm. level, the lode is 18 in. wide, yielding 2 tons of ore to a fathom, worth 4*l.* per ton. In the 110 fm. level, the lode is 2 ft. wide, yielding 2 tons of ore to a fathom, worth 4*l.* per ton. In the 120 fm. level, the lode is 1 ft. wide, with good stones of ore in it. In the winze sinking below the 120 fm. level, the lode is 14 in., yielding 1 ton of ore to a fathom, worth 5*l.* per ton. In the 140 fm. level west, on the north lode, the lode is small and poor. In the 150 fm. level west, on the south lode, the lode is small, but yielding good stones of ore. In the 150 fm. level east, the lode is 3 ft. wide, yielding 5 tons of ore to a fathom, worth 6*l.* 10s. per fm. In the 150 fm. level rise, the lode is 3 ft. wide, yielding 5 tons of ore to a fathom, worth 6*l.* 10s. per ton. In the 180 fm. level, we have cut the south lode, and find it split into small veins, the largest of which is 8 in. wide, yielding good stones of ore. In driving east these veins or branches will fall together, and having a good course of ore gone down in the 150 fm. level, about 20 fms. east of the 180 cross-cut, we have every reason to believe that when the 180 is in sufficiently far as to catch the dip of the ore, it will become as productive a level as the one above. During the last 2 months we have opened more ore ground in these mines, than in any like period since we have been working, and, taking the mine altogether, we can with truth and pleasure, say, that it is looking better at the present time, than we have before seen it. Our next sampling will not fall much short of 500 tons, and, it being for 8 weeks only, will account for the little deficiencies.—R. EUSTIN. E. RALPH.

SOUTH WHEAL TRELAWNEY.—The adit end in Sobey's lode (the eastern lode) has been set to drive south by six men, at 2*l.* 2s. per fm., for 6 fms. in extent. The lode in this end is improved in size and appearance, being now 2 ft. wide, composed of gossan, spar, prian, and soft killas; in the strata near the lode are several spots of lead. We have holed the shaft on the back of this level, and cut the plat, and have driven 10 ft. south of the shaft, and shall put this level on as fast as possible. The south adit east is set to drive by six men at 5*l.* per fm. for 1 fm. extent. The ground is hard just now, having previously met with similar bunches and better ground.

SILVER VALLEY.—March 9.—I beg to say that the lode in the 30 fm level west is without alteration, being 2 ft. wide, producing some stones of tinwork; the lode in the eastern end is about 2 ft. wide, composed of capel, spar, jack, and peach, containing some good work for tin. The lode in the 20 fm. level west is 2½ ft. wide, producing some good tinwork; the south shaft is secured to the bottom of the 30 fm. level, and the shaftmen are now busily engaged fixing a plunger-lift there. The 10 fm. level is clear 6 fms. east; in the course of the silver lode ends, we expect to see the eastern end by the end of this week; the silver lode, in the eastern shaft, at Wheal Sisters, is 1 ft. 6 in. wide, composed of gossan, peach, and flookan.—S. RICHARDS.

TRELEIGH CONSOLS.—March 7.—In Christoe shaft, below the 90 fm. level, the ground is favourable; in the 90, east of ditto, the lode is 3½ ft. wide, worth 20*l.* per fm., but still very likely to improve; in the 90, west of ditto, the lode is 18 in. wide, producing stones of ore. In Garden's shaft, below the 80 fm. level, the lode is 5 ft. wide; the ore in the south part of it is worth 35*l.* per fm. In Good Fortune shaft, below the 70, the lode is 4 ft. wide, with stones of ore; in the 70, west of ditto, the lode is 3 ft. wide, producing stones of ore, and has a very kindly appearance. In the 60, west of Symons's, the lode is 2 ft. wide, producing good stones of ore. In the 50 cross-cut north the ground is still hard for breaking; in the rise, above the 50 west, the lode is 15 in. wide, orey. In the winze, below the 44, the lode is 1 ft. wide, but little ore. In the rise, above the 20, the lode is small, without mineral. In the winze, below the adit, the lode is 15 in. wide, unproductive.—W. SYMONS.

UNITED HILLS.—March 10.—At Williams's shaft the lode is 2 ft. wide, ore of good quality. In the 80 fm. level, eastern end, the lode is 4 ft. wide, producing ore throughout of average quality; western end the lode is 3 ft. wide, producing some stones of ore. In the 70 fm. level, eastern end, still driving to cut the south part of the lode; west of diagonal shaft the lode is 3 ft. wide, not producing any ore; west of James's shaft the lode is 3 ft. wide, coarse in quality. In the 60 fm. level, east of eastern shaft, the lode is 2½ ft. wide, 18 in. ore of average quality; west of Harper's winze the lode is 3 ft. wide, 1 ft. ore of average quality; in the stopes, east of Harper's winze, the lode is 3 ft. wide, ore of fair quality; in the stopes, west of James's shaft, the lode is 5 ft. wide, 3 ft. ore of fair quality—a little improved. In the 50 fm. level the ground is much the same for driving as last reported. At Wheal Sparrow, no lode broken in the rise in the past week. In the 40 fm. level, eastern end, the lode is 2 ft. wide, orey throughout, of fair quality; no ground driven in the western end for the past week—the men have been engaged putting in a tram road. In the 30 fm. level the lode is 1 ft. wide, ore of average quality.—T. TREVENEN. R. WILLIAMS.

WEST WHEAL JEWEL.—March 9.—The ground in 115 cross-cut south is more favourable for driving; driven in the past month 1 fm. In the 100 fm. level, east on Wheal Jewel lode, the lode is 2 ft. wide, worth 5*l.* per fm.—driven 5 ft. In the 100 fm. level, west on ditto, the lode is 1 ft. wide, worth 5*l.* per fm.; driven 1 fm. 1 ft. In the 85 fm. level, west on ditto, the lode is worth 12*l.* per fm.; driven 2 fm. 2 ft. 10 in. We have driven on the 70, west of ditto, 2 fm. 3 ft.; and in the 70 cross-cut south, 1 fm. 3 ft. 6 in. In the winze sinking below the 70, on Williams's cross-course, the ground is favourable—sunk 1 fm. In the 85 fm. level west, on Buckingham's lode, the lode is driven 1 fm. 2 ft. 6 in. In the 85 cross-cut north the ground is very favourable; driven 1 fm. 4 ft. 6 in. In the 30 fm. level, east on Morcom's lode, the lode is 1 foot wide, unproductive; driven 1 fm. In the 12 fm. level, east on Tolcarne tin lode, the lode is worth 7*l.* per fm.; driven 2 fm. 5 ft. At Wilkinson's engine-shaft, sinking below the 30 fm. level, the lode is 2½ ft. wide, containing occasional stones of ore; sunk 4 ft. In the deep adit, west on do., the lode is 2 ft. wide, unproductive; driven 1 fm. 2 ft. 6 in.—S. LEAN. R. JOHNS.

WHEAL CARPENTER.—March 12.—This mine is situated near the Great Maria north, and west of Wheal Concord and the Wheal Grace Mines on that lode. At Wheal Concord, 4000 tons of lead ore has been sold; and from Wheal Grace there is now from 30 to 40 tons ready for sale. Wheal Carpenter joins this mine to the west for about a half a mile long; the lode is large, varying in size from 8 to 12 ft. wide; very little has been done to the west of Wheal Grace here. Some pits have been sunk on the back; and where it has been seen, it has a promising appearance, similar to Concord and Grace, and at a similar depth—might fully calculate on its being found equally productive.—G. FRANCIS.

WHEAL MEXICO (near Callington.)—The cross-course is not yet reached at the 20 fm. level, and the lode is still hard, but are expecting every day to cut it, when we may reasonably hope to meet with some valuable silver ground, from the fact that silver has hitherto been found in abundance close to the cross-course in this neighbourhood. The lode in the East Cornwall shallow adit is slightly improved, and the tributers are looking forward to fall in with another rich bunch of muriate of silver. We intend sinking on the copper lode, where, from present appearances, there is an excellent prospect of cutting a rich course of copper ore. Capt. Floyd, formerly captain of the adjoining mine, East Wheal Prospect, to the west of the Old Wheal Brothers, have been appointed to inspect the copper lode, has sent the following report.—W. KNOTT.—"According to your request, I was at East Cornwall on Saturday last, where I was accompanied by Capt. Knott over the sett and underground, to inspect the copper lode driving east in the adit level. The lode altogether, in the present end, is 5 ft. wide, composed of white killas, black capel, spar, mundic, and black jack, intermixed with large spots and stones of copper ore. In a word, I do not hesitate to say, that a more kindly and more promising lode cannot be seen in the eastern part of the county of Cornwall.—JOHN FLOYD."

FOREIGN MINES.

ALTEN MINES.—*Raipas Mine, Jan.* 22.—I have just now returned from this mine, and it is with great pleasure that I can now bear witness to the accuracy of Monk's report of the discovery alluded to at the end of my last mining report (see *Mining Journal*, Jan. 28). The prospects have certainly undergone a very material improvement within the last fortnight; and, I must confess, that, for several years past, the general appearance of the mine has not been so flattering as at present. About 4 fms. have been sunk and driven on the new discovery, and the ore, of a superior quality, appears to extend both in length and depth. We shall have another carga of prills and best dredge ready by the end of next week. The ground is unusually favourable for working, not costing more than $10 to $12 per fm. for sinking or driving, and $4 to $5 for stoping; if these favourable prospects continue, we shall considerably increase our returns of copper by the end of March; in the meantime we shall force the workings as much as possible, for the purpose of putting you in possession of a greater quantity of copper in the spring. I shall write again in a fortnight.—S. H. THOMAS.

ANGLO-MEXICAN.—*Guanaxuato, Jan.* 26.—*Asuncion.*—There has been a slight improvement in the proceeds of the mine during the months—the results are thus—

	Memoria.			Sale.			Loss.			Profit.		
Dec. 27	$442	6	3	$832	6		$26	3	3	—		
Jan. 3	479	7	3	1118	5		—			879	3	3
10	534	2	9	1409	5		—			170	3	9
17	461	4	8	1738	6		—			407	6	4
										$657	5	4
Less—loss on one week										26	3	3
Total										$631	2	1

Total number of cargas, 965; average price, $5·237 per carga; by this it will be seen that the average price is greater than during the previous month; but, as regards the prospects of the mine, I will defer giving an opinion until I have examined it.

Sevena.—As usual, I have no profit to record; whatever good may result from this mine, none of it comes into the company's hands, except the rent.

BOLANOS MINING COMPANY.—*San Clemente, Jan.* 17.—I beg your reference to my respects (17th ult.), of which duplicate is annexed, and I have to acknowledge receipt of your secretary's letter of the 1st Nov.

ZACATECAS DISTRICT REPORT.

SAN CLEMENTE, SAN NICOLAS, AND MALANOCHE.—The raising of ore has been much less in the past month, owing in a great measure to the number of holidays, by which nearly a week's work was lost; the workings also continue very poor. The west end of La Luz has continued as before, never without a vein of good ore, which sometimes reaches half a vara in width, and then again dwindles down to a few inches. The winze of La Luz, advised in my last, has been sunk on the south branch of ore, which at first was of good promise; but, since the last fortnight, has fallen off greatly in quantity and quality. Water has shown itself also in this work, and it may possibly prevent our sinking as intended to the San Fernando level. The west end of San Francisco, continues without ore; 11 pairs of men are employed in the reserves, and, although these reserves have somewhat deteriorated again, I hope they may still give us good assistance for some time. The cross-cut of La Merced, has continued without further discovery. The end of Animas has cut the Barguena lode in borrasco, of the same description as we drove upon in the upper level of Dios nos Guie; we shall drive upon it this month, and, if no improvement appear, it will be given up. The south cross-cut of San Jose has cut a small leader of the lode we seek; so that it is probable we shall soon come to the principal one, and determine the merits of this work.

SAN FRANCISCO DE PAULA.—The sinking of the shaft has been less favourable than before, on account of the hardness and laminated nature of the ground, which moreover requires timbering. Since last week, however, there has been some improvement in the ground—the total depth now is about 86 varas—and, if the cross-cut from San Bonifacio had been home, the communication would have been made; but, throughout the month, the ground in this cross-cut has been exceedingly difficult to work, and about five varas are still wanting for it to reach the shaft. The lower cross-cut of 125 vara level is hardly in more favourable circumstances, and we shall not be able to drive the shaft at several ends for several weeks to come. The east end of San Bonifacio continues with a small vein of good ore, which the buscones break as fast as we open the ground for them. The two ends to the west have been suspended till the communication is made with the shaft. The winze of San Miguel of such good promise when I last wrote, although still productive and highly promising, proved very inferior to my expectations. On opening ends to the east and west, the ore immediately disappeared to the east entirely, and the work was suspended; to the west we have always had some small veins and bunches to encourage us to persevere; in the bottom only has its character been maintained, and from this work alone we have been raising 60, 80, and 100 cargas weekly of a ley, which will probably average 13 mcs. Six pairs of men working on ores are employed in it; two of them are sinking a winze of the usual dimensions, and the others following the ore. When the communication is made with the shaft, a cross-cut will be made into the enormous width of lode we have here in the footwall south.

VETA BELLA.—The sinking of the winze of San Bonifacio has been resumed on the upper wall of the lode, and, from its present underlie, will, no doubt, prove to be on the same lode as was last cut in the lower cross-cut of San Juan.

CELESTINA.—In the north cross-cut of 64 vara level a feed of water was cut, which rendered it advisable to stop the driving of this work. A little spring has also been met with in the bottom of the shaft; but hitherto it does not require more power in the malacate, and occasions no increase of expense, nor does it impede the sinking, which has now reached nearly 90 varas. Some hard ground has been gone through during the month, but it is now reported to be favourable again, and the sinking will go on expeditiously. The timbering of the footway into the mine has been completed. The cross-cut of the adit level towards the shaft, has been driven about 22 varas, 8 being now wanting to reach the shaft. In this work we have cut through a lode, from which, in going through it, we have filled 21 cargas of ore, assaying 15 mcs. 1 oz. per monton. The lode has been called Del Mayorazgo; it is about 1 vara wide, and nearly all of it is ore of the above quality. We crossed through it diagonally, leaving the ore in the roof and the bottom (about 6 varas in length), and in the two ends; and, as soon as the communication is made with the shaft, and conveniences prepared for receiving and cleaning the ore on the surface, I have no doubt 100 cargas will be broken from it the first week we go to work; and, if the deposit should prove continuous, and not merely a little bunch, into which we have had the luck to cut, we may reasonably expect to cover our expenses, and pay off the debt of the mine immediately.

LA GRANJA HACIENDA.—The injurious effect of the cold weather has continued to be felt; and in the torta last washed, belonging to Malanoche, there is a loss of 26 per cent. on the assay. In order to correct this as far as possible, I have ordered a still larger proportion of bronzes, and other refractory pintas, to be separated for roasting.

P.S.—20th Jan.—The Superior Court has decreed that the suit of the "Cuchilla" shall return to the mining tribunal to be tried over again, embracing questions which were neglected in the first trial, and ordering the money to be secured, to abide the result. Malanoche has appealed from this sentence, but, in the meanwhile, I have again opened the Cuchilla accounts, and separated the ore, so as to be prepared for any event. The company still maintains its independent position with regard to this question.

Statement showing the General Result of the Mines and Haciendas for December:—

Mines.	Profit.			Loss.		
San Clemente Mine	$2437	2	5	—		
San Nicolas	5185	4	2	—		
Malanoche	—			330	6	2
San Rafael	—			6876	4	5
Veta Bella	—			462	3	1
La Celestina	—			1859	0	6
Loreto	—			72	1	0
Disputed ground	$1909	2	1	—		
Haciendas	1470	6	5	—		
	$11,002	7	5	$9600	7	6
Loss	9600	7	6			
Total profit	$1401	7	7			

NATIONAL BRAZILIAN.—The late advices received from Brazil, announce that the once celebrated, but long-forgotten, gold mine of Cocaes, is likely to add one more instance of successful results—rewarding an unwearied and steady perseverance. A discovery, it appears, of great importance, has lately been made at that mine by a hired negro, in the employ of the company. It is described as a gold-bearing stratum, 12 fms. wide, and which can be traced 37 fms. in length. It was first intersected by the Cornish captains in 1835, and since that period by several others, who pushing on for another object, neglected to sample the ground as they advanced. Some of the specimens have been sent over, which are very rich, composed chiefly of compact jacotinga. This discovery was made in the deepest part of the mine—in an adit—which has been prosecuted for many years.

PACHUCA MINES.—*Jan.* 23.—*Rejona.*—After sinking 1½ vara below the 250 vara level, and finding the vein poor, it was abandoned, and the clearing resumed eastward. At 11 varas east of the winze a sink was found; in clearing which, we discovered workings full of attle, going west, below the ground, or arch. These workings are now being cleared.

San Miguel.—The cutting open and securing of the shaft is completed; it is now made good 4 varas long by 2 varas wide. The sinking has been resumed, and the lode is looking promising. The following is the result of three assays made yesterday:—Rough quemazon, 2 mcs.; gossan, 6 mcs.; small, 11½ mcs. All the metal from 6 to 8 mcs. per monton is saved apart, and that above 8 mcs. separated from the rest. The lode altogether is from 6 to 8 varas wide, and underlays a little to the south, but the shaft is sinking on the north part, which is about a vara wide, and the great bulk composed of the gossan and the small—the assays of which, as before-mentioned, came out at 6 and 11½ mcs. per monton. I cannot, however, venture to calculate on the quantity of the latter class that may be raised, as it has so lately been discovered. The shaft at this time is only 40 varas from surface, and, judging from the appearance of the vein, there is every reason to expect that it will soon become very productive. At 50 varas deep it is proposed to drive a level east and west, and a cross-cut south, to examine the hard part of the vein, described in former letters. Upon the whole, this appears to me to be the most favourable of the company's works, and will, I trust, eventually repay the outlay, with good interest.

Esperanza.—The lode in the shaft is about 1½ vara wide, and, in appearance, much the same as last month, producing some stones of ore, of low ley.

San Buenaventura.—In the 95, west of the shaft, the lode has again altered within the last few days. There is now a kindly leader, or branch, in the end, about 6 in. wide, assaying 7 mcs. per monton. The winze below the level, 100 varas west of the shaft, was sunk 4 varas, when, finding that the lode did not improve, it was discontinued. We have since commenced a rise above the level, at the point where the winze was sunk, in order to follow up the little branch of ore discovered in the level, which is looking promising. About 12 quintals of small assayed 7 mcs. per monton, and half a quintal of rough assayed 11 mcs. per monton. The ore part of the vein is about 6 in. wide, and appears to improve. We have sunk several other pits on the backs of other veins near Esperanza. A shaft, sunk upon a large lode, about 70 fms. south of Esperanza, has been cleared to the bottom 12 varas. The composition of this lode is much the same as the others in this district near the surface—viz., red flookan and quartz. On the other vein, which runs nearly parallel with La Esperanza, 44 fms. south of that, we are now sinking pits to discover its underlay.

Guadalupe.—Since last month we have driven 8 varas north-west, on the eastern wall of the channel of ground mentioned in my former letters, in order to see whether it would change, or the direction serve to drive on to cut the north lode—being much more soft than the direct course; but, finding it turn considerably to the west, it was abandoned, and the driving of the former cross-cut resumed. The sinking of the shaft is still carrying on; the total is now 5½ varas. The lode contains stones of mundic and spar—much resembling that found at the commencement of the 108 vara level. The quantity is as yet very small, and the quality from 8 to 12 mcs. per monton.

REAL DEL MONTE.—*Mineral del Monte, Jan.* 29.—I am in receipt of your favour of the 29th November, which arrived here on the 17th instant. I do not fail to notice the anxiety of the directors, with respect to the progress of the works at the hacienda of Sanchez and San Antonio. At the former, one English carpenter, with assistants, are employed about the water wheel, which is in a forward state, and the excavation for the wheel pit, and outlet for the water, will also soon be finished; but the work has gone on much slower than it otherwise would have done had not the greater part of our artisans, masons carpenters, and blacksmiths, been almost exclusively employed preparing for

the speedy erection of Terreros engine at Acosta. The engine is entirely removed from the old house, and the necessary repairs are being completed with the least possible delay. Next week we propose to carry down the bob iron and the other heavy parts of the machinery to Acosta, and in about 12 days hence to commence taking out the old engine, &c. Four weeks after, I trust the new one will be at work. We propose to suspend the new 30-inch cylinder engine whilst this work is in hand, as of itself it would be of little or no service. You will have observed, that we intend to attach to the new engine 12 and 14-inch plunger lifts, which, together with the 10-inch belonging to the small engine, will (I hope) enable us to keep the mine entirely drained. By Captain Rabling's report, you will observe that the ore in San Enrique and San Pablo continues rather to improve than otherwise as the depth increases: it should be noticed, however, that the vein is subject to fluctuation, being sometimes better than at others. There is every probability, judging from its general appearance, that the ore will continue for a long time to come. The produce from this place, added to a very small portion from the Aviadero north, amounted in the last three months as follows:—

	Azogue.	Smelting.	Value.
October	551 quin.	450 quin.	$23,349
November	1633 „	489 „	31,554
December	2221 „	336 „	26,869

The falling off of smelting ore last month was owing to the hindrance caused by the water—as, during this period, the working was carried on under very disadvantageous circumstances, as the water had to be drawn by pumps worked by peones, 7 varas high. The deepest part of these planes is now 6 varas below San Juan level, where the water in San Enrique winze is still troublesome—but in San Pablo it is decreasing, which is probably owing to the near approach of the Santiago level, 27 varas below. Near the present end of the Santiago level, the flookan part, on which we have hitherto been driving, has crossed the main part of the Biscaina,—and going westward, leaves the latter on the north side. We propose next week to drive north through it, by which means it is hoped that the planes above will be completely drained—if this should happen, as we expect, it will enable us immediately to make a notable increase in the returns from the fundiciones. The water has lately increased in the 216 vara level at Dolores, driving west of the diagonal shaft, and has already had the effect of draining about three varas of the workings below Santiago level, and I expect it will speedily disappear altogether, which will enable us to employ 7 or 8 additional paradas by day, and as many by night, on a large lode, containing a pretty good abundance of azoque ore, intermixed with bunches of smelting. From the Aviadero north, some rich stones of ore were brought up on Saturday last, containing native silver; but the quantity is rather small; yet, from seeing the promising nature of the vein driven through in the last few months, I do believe we shall discover ore in greater abundance, with a better and more uniform ley than that hitherto discovered. By Capt. Skinfill's letter to Mr. Taylor you will observe that the water at Acosta continues very abundant, and the two 30-inch cylinder engines, each working 13 strokes per minute, are barely equal to keep it to the level of the Aviadero. Owing to the impossibility of continuing the driving of the Aviadero level south, many of the labores below the San Antonio level are worked out to the level of the water, about 35 varas below San Antonio—the consequence of which will be, for the present, to confine the working on ore above that level, and where the ley is not so good as in the bottoms going down. I anticipate, however, no difficulty in being enabled to supply the haciendas with a sufficient quantity of ore to keep them in full work, containing a ley of between 10 and 12 marcs per monton. From Sacramento, I also expect an increase of ore in the ensuing month from the 8 vara level driving north, and more particularly from the Todos Santos winze, where the lode is about a vara wide composed of good azoque—the last 3½ varas produced 400 quintals of azoque and 6 of smelting ore. You will also observe by Capt. Rabling's report, that if it were necessary, we could easily increase the raisings from Santa Ynes, where there appears to be an abundance of ore of a ley, varying from 12 to 14 marcs per monton. At Rosario, I am at present merely carrying on the one work described in my last—viz., the San Miguel level, driving at two points, east from the shaft, and west from San Rafael winze. When the communication is made between the ends, which I expect will take place by the end of February, the mine will then be in a good state for future operations. I enclose a section of this mine, by which you will perceive there is a large piece of ore ground that can be taken away very economically—besides which there is a shaft already sunk to a considerable depth, which will enable us to bring in a new level at convenient distance below the present working. By the estimate of last month, it will be seen that the produce was expected to have been 51 bars,—but in Regla, instead of 9, only 6 tortas were washed, in consequence of the amalgamation process having gone on unusually slow in three remaining tortas, and which could not have been washed without a heavy loss of silver and quicksilver; it was therefore deemed prudent to allow them to remain over for the present month. The three tortas have since produced about 1100 marcs, which, if they were brought in, would show a result corresponding with the estimate—viz., about $7000 profit; but the actual profit, owing to the foregoing, amounted only to about $150. For the present month, the silver will probably be 48 bars, which I expect will leave $4000 or $5000 profit, although there will be nearly $5000 charges for machinery for San Antonio.

UNITED MEXICAN.—*Guanaxuato, Jan.* 26.—*Mine of Rayas.*—No particular variation is observable since my last despatch, either in the character or produce of the several workings or points of research. Of the latter, San Mauro continues the most promising—small threads of ore, of fair quality, having been laid open, and with indications of improvement in the more advanced ground. Some slight improvement is also observable in the nature of the ground in the two other works of speculation—Santa Cecilia and Santo Toribio—with a few little patches of ore in each; which circumstance encourages the hope, that better results may be looked for as we approach nearer to the San Miguel portion of the mine. By the following comparative statement between the two last months, it will be seen that there is a slight increase of picked ores; while, on the other hand, there is a decrease in the outlay, as well as in the sales on joint-account with buscones—the latter having been caused by the recent successive interference of holidays, while the former is the effect of the ores having been found in a cleaner state than usual:—

4 wks. end.	Picked ores.	¼ amt. sales.	Outlay.	Excess of Outlay.
Dec. 20.—Cs.	2142 0	$11,472 0 0	$16,336 4 1	$4864 4 1
Jan 17. „	2260 0	9395 6 0	15,534 1 2	5938 3 2
	Cs. 118 0 Increase.	$1876 2 0 Decrease.	$802 2 7 Decrease.	$1073 7 1 Increase.

J. N. SHOOLBRED.

Note.—Remittances.—By this packet $10,000 have been received from Vera Cruz; and by the following one, due here about the 7th of April, $15,000 more will no doubt arrive—he having forwarded that sum by the Tampico conducta, which left Guanaxuato on the 24th January. These two sums, making together $25,000, and being free of duty, shipping, and all other charges in Mexico, will amount to about the remittance promised in his last letter.

London, March, 9. J. MATHER Secretary.

[FROM CORRESPONDENTS.]

CARADON CONSOLS.—The lode in the 27 fm. level is looking very well, and, from a winze in the same level, some rich stones of copper ore are being raised.

GRENVILLE MINES.—This set, which has lately passed into new hands, is, we are given to understand, about being worked on an extensive scale. Lady Grenville having made a fresh grant, at the liberal dues of one-twentieth, which were formerly one-fifteenth, is in itself an encouragement for the prosecution of operations, and which, from a reference to the ground plan, and the immediate locality with mines, which have yielded, and are now producing, vast returns to the adventurers, would lead us to suppose, that this will form an addition to this productive channel of ground. We should observe, that the set, which extends 800 fms. on the run of the lodes, and about 400 fms. north and south; is situate immediately south of Carn Brea, Tincroft, Cook's Kitchen, Dolcoath, East Pool, North and South Roskear, and Stray Park Mines, and in a range with the lodes coming east from the Consolidated and United Mines, while it is north-east of Tresavean: 17 lodes have already been discovered, with fine gossan at the backs—the principal work done in olden times being by "shoding," although we are given to understand a shaft has been sunk some 28 or 30 fms., which it is proposed to clear up immediately, as also to open on one or two other of the lodes. Judging from the position of the sett, and the channel of ore ground ranging north and south, and thus rendering the lodes running east and west between Redruth and Camborne, as already proved, little doubt can be entertained of success attending the adventure.

SOUTH TRELAWNEY.—In driving on Soby's lode they have made a most important discovery, by cutting unexpectedly into a course of copper ore, of very rich quality. The size of the lode, or the real value of the discovery, cannot be as yet fully ascertained, in consequence of the quantity of water issuing from the lode. [The announcement of this improvement, in the London share-market, was made under very suspicious circumstances, and has created much excitement amongst the shareholders, from whom many shares were obtained; but, as an inquiry will be instituted by a committee of gentlemen, appointed for that laudable purpose, it will be but fair to wait the result of the investigation, before the names and proceedings of the parties concerned in the transaction referred to, be made public.]

TOKENBURY MINE.—A very valuable discovery was made here on the 9th, by cutting a course of very rich grey and black copper ores. The lode is 2½ ft. wide, and, from present appearances, promises to continue. It is hoped that the expectations of the adventurers will be now realised; for although they have anticipated a course of ore long since, this improvement appears to have been rather unexpected by them.

WHEAL NORRIS—From its proximity to Caradon Consols, and other promising mines, will, it is expected, before long, take a place in the Ticketing Papers. The lode at the 16 fm. level was composed of finor spar, peach, and good stones of ore, and these indications have never yet failed in the Caradon district.

HERODSFOOT MINE.—The engine-shaft, and the levels, are nearly cleared, and both of the bottom ends contain some excellent stones of lead ore. The improvements here are daily manifest.

WHEAL WALTER.—Information of some importance has been received by the secretary, of the discovery of two very promising lodes during the present week. The first is composed of beautiful gossan, about 2½ ft. wide—its course being direct east and west, and underlaying north; symptons of this lode are very manifest in the plantation in the west of the sett, and an adit can be driven on course of this lode west, which will give an adit of 20 fms. depth on driving 100 fms. In exploring the north part of the sett, the back of a very large lode was discovered, 150 fms. further north than any of those marked in the section. These discoveries appear to give a considerable impetus to the activity already prevailing on the mine.

HANSON MINING COMPANY.

A general meeting of the adventurers in these mines was held at the offices, 44, Finsbury-square, on Monday last, the 9th inst.—RICHARD HODGSON, Esq., in the chair.—The CHAIRMAN read the directors' report, which stated that, since the last meeting, an engine had been placed upon Stainsby's shaft, at that part of the mine called Treza, where the lode, both at the 12 fm. level and the 22 fm. level, some good work for ore has been risen, and is still rising, and from which considerable returns are expected; altogether this part of the company's property holds out good prospects. From the statement of accounts presented, it appeared that the balance against the mine from the last meeting, was 898*l.* 1s. 4d.; expenditure, 4960*l.* 16s. 3d.—total, 5838*l.* 17s. 7d. Received on calls, 4179*l.*; ores sold, 323*l.* 15s. 8d.; total receipts, 4502*l.* 15s. 8d.—showing a balance against the company of 1336*l.* 2s. 4d.—The report from Capt. Williams was then read, which stated that they had been greatly disappointed with Wheal Ribb lode, though it had been of a good size, composed of mundic, chlorite, quartz, and copper ore, and in some places good bunches of ore. At a meeting of the Cornish shareholders, a resolution was passed, to sink the engine-shaft 10 fms. deeper, which was done. They were driving south to cut the lode at the 64 fm. level, and expected to cut into it in a few days; the appearance of the lode at the 64 fm. level would determine future operations in that part of the mine; they had but one pitch in all the ground open, and that was 13s. 4d. in the 1*l.* Since the last meeting they had erected a 40-inch cylinder engine at Treza, on Stainsby's lode, and sunk the engine-shaft to the 22 fm. level. East and west on Stainsby's shaft, on a caunter lode, the lode was 2 ft. wide, composed of spar, mundic, and copper ore; the back was being worked at 10s. tribute; the lode west of the shaft was 2½ ft. wide, producing some ore, and kindly. At the 22 fm. level the lode was 2 ft. wide, with good stones of ore, best in the east end; they expected to cut through the lode in 10 days or a fortnight, and the caunter lode in 2 or 3 fms., on which their expectations were very high. The improvement has been very great from the adit to the 12 fm. level. They were preparing to commence sinking the engine-shaft below the 22 fm. level, as the appearances warranted a much further trial. They had about 12 or 14 tons of ore on surface, worth from 6*l.* to 7*l.* per fm.

It was then moved by Mr. JAMES, seconded by Mr. PROCTOR, and carried unanimously—"That the report and accounts now read, be received, adopted, and entered on the minutes."—From the conversation which ensued, it appeared probable a further outlay of about 3000*l.* would take place in the current year, but that increasing quantities of ore would, doubtless, be raised, the real character of the ground would be further developed, and would enable them to form a better opinion of the mine, of which at present very sanguine hopes were entertained.—Mr. JAMES moved, and Mr. PROCTOR seconded, a vote of thanks to the chairman, which was carried unanimously, when the meeting broke up.

LEWIS MINING COMPANY.

The second annual general meeting of the adventurers in this mine took place at the offices, 44, Finsbury-square, on Saturday last, the 7th inst.—RICHARD HODGSON, Esq., in the chair.—The CHAIRMAN, in commencing the proceedings, said that he had great pleasure in calling the attention of the shareholders to the underground report of Captain Johnson, and also to observe, that the mines were rapidly progressing; he then read the following directors' report:—"We have much satisfaction in meeting you on this occasion, and in submitting to you the accounts. The report of the underground agents (Captains Noel and Eddy) will be read, in addition to which, Mr. Johnson, who has recently visited the mines, has favoured us with a written report, which will also be submitted to you. We feel much pleasure in communicating these two reports to you, agreeing, as they do, in the essential point—the great promise of success at Wh. Nutt, which is greatly improved since Mr. Johnson's inspection, and we may soon expect with confidence considerable returns, which will be a great and seasonable relief to us all, inasmuch as fewer calls will be necessary."

From the statement of accounts, it appeared that the balance against the mine from the last meeting was 1807*l.* 0s. 5d.; expenditure, 6030*l.* 6s.—total, 7837*l.* 6s. 5d. Received by instalments, 5220*l.*; tin sold, 360*l.* 19s.—total receipts, 5580*l.* 19s.: showing a balance against the company of 2256*l.* 7s. 5d.

The report mentioned, on the state and prospects of the mine, from the agents, Messrs. S. Noell and P. Eddy, was then read, the principal points of which are contained in the following extract:—"We beg to hand you our report of the state and prospects of these mines, with a detailed statement of the operations since your last general meeting, and what we purpose doing in future. At Lewis, when we commenced operations, at first with the full expectation of finding Wheal Providence lode, we are, we confess, much disappointed, though we have the identical lode, yet the strata is of that sort in which scarcely any copper ore is found. We have sunk Scadden's shaft 39 fms. from surface on the course of Wheal Providence lode, and have had occasional floors of blue killas, in which the lode assumed quite a different character to what it did while in the red slate, but we regret to say that the red slate appears to go down beyond the bottom of the shaft; this we have suspended, and, perhaps, shall not be able to recommend its further prosecution, without an improvement in the western part of the sett (that is in Hablyn's land). The lode in the bottom of Lewis's engine-shaft is 11 in. wide, with some spots of ore; there are four branches containing good quality ore to the south of the lode, which, from their underlie, will fall down on the lode, and from what we have seen in other mines of the moor ground by-and-bye set at a less tribute. The lode in the 50 fm. level west is 2½ ft. wide, tinny throughout. The 40 fm. level end east is producing tinstuff to be equal to the cost of driving; the 40 west is at present unproductive. The lode in the 30 fm. level end east is 18 in. wide, worth 40s. per fm. for tin. We hope to work a cross-cut south, in order to intersect all the lodes and branches in that direction within the limits of the sett; by driving this cross-cut we have intersected several branches already, and all of these containing good quality ore in a very favourable strata; we have just now passed through a branch, with some stones of yellow ore in it. We have set up a stamp of 12 heads, made tin floors, &c., and are now building burning-house, which we hope to complete in a month; we have set up whims, &c., so as to get the mine in a regular course of working, and are glad to say that from present appearances we shall very soon get this part of the mine to pay her own cost, and, indeed, do better than that, if the lode continues to improve as we sink, as it has done for the last 6 or 7 fms. We think we can venture to say that in no other mine has more work been done in the time, nor for less money."

The CHAIRMAN trusted that, after he and the directors had done all they could to promote this undertaking, they would not be held liable for the debts now due to the company.—Mr. MACKAY considered that the accounts ought to be made up every two months, so that they might know how their affairs stood.—Mr. TYRER objected to only meeting once a year, as he considered that they ought to meet at least once a quarter, so that they might be in possession of the advance making in their affairs.—The CHAIRMAN replied, that they met every fortnight, and the books were always open to the shareholders.—Mr. TYRER objected that any shareholder should undertake contracts for the company.—Mr. STAINSBY said that there was no agreement between them.—The CHAIRMAN said, they would require 6000*l.*, but the returns of tin would be 3000*l.*; they had a very good tin lode, and there was no doubt that it would be very successful. The Wheal Nutt copper lode and Wheal Providence were improving greatly.—Mr. TYRER considered that the directors could only make a call of 1*l.* per share, and he was sorry to see that the directors had allowed so many shares to be in arrears of payment.—The CHAIRMAN observed, that he had not the slightest doubt that all would be paid up, and, if not, some of the Cornish miners will sue them for the call, and he would do the same himself. He had no doubt, from the report of Captain Paul, that the Wheal Nutt Mine will turn out a profitable adventure.—After a few remarks from Mr. TYRER, who proposed that a special meeting be called to consider the affairs of the company,—The CHAIRMAN said, that the directors would call the shareholders together in the month of May.—Mr. STAINSBY replied that a meeting would be called in the middle of that month, giving due notice, so that all shareholders might attend. It appeared that the expenditure had been 12,000*l.* for the last three years, and Mr. Stainsby stated that the calls would not be one-half what they had been, not exceeding 500*l.* for the two mines, and that they had two capital engines, one of 36-horse power, and another of 40.—The CHAIRMAN observed that they had been driving at the Wheal Providence without success; the Wheal Nutt, with engine and sinking shaft, had cost but a trifle, and is going on most prosperously.—It was moved by Mr. MACKAY, seconded by Mr. PROCTER, that the reports and general accounts be read, and entered on the minutes, which was carried unanimously; and thanks having been voted to the chairman, the meeting separated.

COOMBE VALE CONSOLS MINING COMPANY.—At a meeting of adventurers, held at the King's Arms Inn, Launceston, on 16th ult., Mr. J. T. Pearce's (purser) accounts, showing a balance in bankers' hands of 45*l.* 2s. 4d., having been examined and passed, a call of 1*l.* per share was made, payable, within 30 days, at the Devon and Cornwall Bank. The following Report from Capt. James Rowse was read to the meeting:—"The engine-shaft completed, lifts fixed, and plat cut at the 24 fm. under adit level. We are now making good progress, having 33 fms. from surface, with a prospect of arriving at the 36 fm. under adit by the end of March next, when we expect to cut the Wheal Maria lead lode, and No. 2 copper lode. At this level it is contemplated to drive east to cut Doidge's lead lode, and south to cut No. 1 copper lode. The No. 3 copper lode, which we have cut at the 10 fm. adit level, and on which we are driving, is 4 ft. wide, has two fair walls, and contains 2 ft. of mundic mixed with gossan, and 2 ft. of flookan and candied spar, with particles of copper throughout. The appearances of the mine warrant the most confident hopes of early success."

DEVON AND COURTENAY CONSOLS MINING COMPANY.—The two-monthly general meeting of the shareholders was held at Radmore's Hotel, Plymouth, on the 6th inst.—WILLIAM ATKINSON, Esq., in the chair.—The accounts—showing balance in hand, including back call, of 357*l.* 14s. 2d.—having been produced, examined, and passed, it was reported, that since the last meeting the principal operation had been on the deep adit; that during the last week they had passed a caunter-copper lode, with a considerable quantity of excellent copper ore in it; they were still proceeding with the deep adit towards the great gossan lode; that the engine and other erections would be immediately commenced, and that a call would be required for such purposes.—Mr. Samuel Lang having tendered his resignation of purser at the last general meeting, it was proposed by E. A. CROUCH, Esq., and seconded by C. V. BRIDGMAN, Esq., that Mr. Rendle should be purser, at a salary of three guineas per month; and that Mr. Davis, of Tavistock, be appointed pay clerk, at one guinea per month.—Proposed by Mr. G. CARNE, and seconded by Mr. BRIDGMAN, that the accounts presented and audited, be passed.—Proposed by Mr. BRIDGMAN, and seconded by Mr. W. E. RENDLE, that a call of 1*l.* per share be made, to be paid immediately into the bank of Messrs. Gill and Rundle, at Tavistock, or into the purser's hands.—A vote of thanks was proposed, and carried unanimously, to the late purser (Mr. Samuel Lang), and that he be added to the committee of management.—It was also resolved, that C. V. Bridgman, Esq., be added to the committee of management: also, that Mr. P. Fisher and Mr. Stumbels be added to the list of auditors; and that the committee of management be authorised to employ a captain who can devote the whole of his time to the mine.—In accordance with arrangements made, notices have been issued by the purser, for convening a special general meeting of the shareholders, to be held at his office, on Friday, the 20th inst., to consider whether the 5th and 11th rules of the company shall not be expunged, and the following substituted, and to make such alterations in the other rules as the meeting may think fit.—It was then resolved, "that at all general and special meetings every shareholder shall be entitled to a vote, either personally or by proxy, on his number of shares, and that each share shall have a vote; also, "that the mine shall be worked on the cost-book system."

EAST CARADON MINING COMANY.—At a meeting of the adventurers, held at Webb's Hotel, Liskeard, on Monday last, the 9th inst.—present, N. Kendall, Esq., Messrs. R. and N. Forster, and J. Elliot, bankers, and Messrs. P. Elmby, J. and P. Clymo, jun., S. Eliot, J. Croucher, and M. Billing. The accounts (leaving a balance in favour of N. Forster, Esq., the purser), having been produced and allowed, a call of 2*l.* per 112th share was made, which was deemed sufficient to cover the balance and prosecute the mine for the next three or four months—the same to be payable immediately. The following repoprt, from Captain J. B. Clymo, of South Caradon Mine, was read:—"We have driven west from the cross-cut, on the north lode, about 30 fms.; for the greater part of this distance, the lode has averaged about 1 ft. wide. About 5 fms. behind the present end, we passed through a lode 16 in. wide, which produced a considerable proportion of copper ore, some of which, by assay, gave a produce of 14⅞ per cent. This is by far the most prominent lode discovered in the sett, and well worthy of an extensive development." It was then resolved, that the adit should be continued on the north lode, with the view of intersecting the cross-course "a-head," on approaching which, most of the ore in the South Caradon district having been found near the cross-courses, in all probability an abundance of ore will be discovered.

TREWAVAS MINING COMPANY.—A meeting of the adventurers was held at the mine, on the 2d inst., when—from the accounts presented, which were allowed and passed—it appeared that the labour costs for the months of Nov. and Dec., and merchants' bills, amounted to 1873*l.* 1s. 1d., and ores sold produced only 759*l.* 1s. 6d.—showing a loss of 1113*l.* 19s. 7d. It was then resolved,—That the above balance of loss be divided, and that the purser collect the same without delay, and that, for the future, the costs be divided and collected every two months—That Capt. R. Pope be appointed night and day captain, at 7*l.* 7s. per month; and if he decline the appointment, W. Richards be appointed, at a like salary—That in future the ore bills be passed to the credit of the month in which they are received—That the balance of 3411*l.* 4s. 11d., due to Messrs. Ricketts and Co., be reduced as rapidly as possible, and that the purser be authorised and directed to enforce, by proceedings in the Vice-Warden's Court, or otherwise, immediate payment of the arrears of calls and costs now due from the adventurers, and pay the same into the bank of Messrs. Ricketts and Co.—That, inasmuch as it has been proved at this meeting that it has been the usage of some banking-houses in this county to charge interest and commission half-yearly on bank accounts; and that, therefore, the foundation of the resolution passed at the last meeting, to "disallow the amount of our banker's account, arising from such charges, has, to a certain extent failed"—such resolution be rescinded—That the purser be directed to pay Messrs. Tweedy and Co., and Messrs. Willyams and Co., the money advanced by them for the use of this mine out of the first moneys coming to his hands applicable to that purpose.—Mr. TURNER, on behalf of Messrs. Ricketts and Co., requested that the account between them and this mine might be closed; and it was resolved,—That Messrs. Tweedy and Co., and Messrs. Willyams and Hodge, be requested to take the bank account of this mine, and to advance the necessary funds for working the mine, to the extent of 2000*l.*—That all materials be delivered on the mine free of carriage, and that the agents be required to count, weigh, and measure, all materials, as they are delivered—That the sum of 10*l.* be given to Capt. Stevens, with the thanks of the adventurers, for his extraordinary exertions since his appointment to the agency of this mine.—Mr. WILLYAMS, on behalf of the Miners' Bank, declined to take the account.

HARROWBARROW OLD MINE.—The engine was set to work here on Monday last, in the presence of a large body of shareholders. It is a combined cylinder engine, from the foundry of Mr. Mare, at Plymouth, who has most ably and satisfactorily carried out the directions of the scientific engineer to the company, Mr. Wm. West. After the company had sufficiently admired the beautifully constructed machine, which, like another Leviathan, had now, for the first time, put forth its mighty power, they adjourned to the carpenter's shop, which had been fitted for the occasion, and a cold collation provided. The chair was taken by EDWARD PRIOR, Esq. of Brixham. Among the company present were W. Atkinson, Esq., Geo. Mason, Esq., J. E. Square, Esq., S. B. Sergeant, Esq., the Mayor of Callington, J. J. Willan, Esq., Capt. S. Seccombe, Mr. Foy, Mr. Gruzelier, Mr. S. Lang of Halton Quay, Capt. Sprague, — Snell, Esq., Mr. Davis, Mr. Williams, Capt. Phillips, Mr. Faull, Mr. Pope, Capt. Penaluna, Mr. Mare, Mr. W. West, engineer, Capts. Cooke and Collom, the agents of the mine. The purser, Mr. Carne, was the vice-president. After the repast, the Chairman proposed in succession the health of her Majesty, success to the Harrowbarrow Old Mine, the Duke of Cornwall, and the Lessors. Mr. Square, as agent for the Duchy, responded to this toast, on the part of his Royal Highness, in a truly eloquent speech, in which he delineated most forcibly the important part which the youthful Prince was to play on the theatre of the great world, and how blest as a nation and people we were to have his moral and intellectual education confided to our Queen, who rules so wisely and so well.—Mr. S. B. Sergeant returned thanks for the other lessors.—The healths of Mr. West and Mr. Mare were respectively responded to by these gentlemen. The purser and captains of the mine next followed. Mr. Carne and Capt. Collom briefly returned their acknowledgments—Capt. Cooke taking an interesting survey of his connection with the mine, and its present prospects, which latter we should detail, but we understand this will be made a matter of special report at the meeting, to be held the 14th inst. Mr. Vice gave the health of the committee, and stated how much the company and himself, in particular, were indebted to their worthy chairman and Mr. Atkinson, for their unwearied efforts in bringing about the object they had that day met to celebrate. The purser of the Harrowbarrow Consols (S. B. Serjeant, Esq.), was proposed by Mr. Froy. The next toast had been already practically illustrated, for abundant provision had been made for all the workmen connected with the mine—"The operative classes, and may we never be forgetful of their comfort, or of our mutual dependence."

The chairman alluded to other works he had in progress elsewhere, and that the more he had elevated the character of his labourers, and identified their interest with his own, the more he had benefitted.—The health of Joseph Elliot Square, Esq., was received with the most unbounded acclamation, and, after that gentleman had responded, the company again rose to give him one cheer more—which, by-the-bye, seemed at one period to be a never-ending one.—Mr. Square said, I can only account for the enthusiasm with which you have received the toast, from the fact of my being a miner (minor) in my teens; and, although at one time I had lost a large sum of money in mining operations, yet I was, like the Dutchman, who had dropped his anchor, I knew where to look for it; and I have now the pleasure of telling you that I have recovered my loss, and doubled—aye, and quadrupled—the sum I had originally sunk; and if any of you know of any more Old Harrowbarrow Mines, I shall be most happy to hear of them; he concluded, by proposing the health of the chairman.—Mr. Vice gave the distant and absent shareholders; soon after which the chairman withdrew, and the company departed, amidst the vociferous cheers of the assembled miners and workmen.—This mine, which at her shallow levels has returned such immense wealth, will now be tried efficiently in depth, and if any value is to be set on appearances and prospects, she will, at no very distant day, amply repay her spirited adventurers.

TAVY CONSOLS.—We hear that this mine is going on most prosperously. Mr. Lomer, of Stonehouse, the purser, has a stone of black and gray ore, weighing nearly three cwt., which was brought to surface this week, and which he will be happy to allow persons to see at any time.—*Plymouth Journal.*

The Low Moor Iron Company, of Yorkshire, are busily engaged in casting cannon of considerable calibre.

KIRKCUDBRIGHTSHIRE MINING COMPANY.

SIR,—In reply to the question of the chairman of the above company, respecting my paying the "call" made at the last meeting of adventurers, I beg to assure him, it was paid very soon after it was made; and at the same time also assure him, how much I admired the adroit manner with which he eludes coming to the point of complaint. I do not complain of "want of information respecting the accounts, &c., as furnished to the shareholders individually, and also through Messrs. Watson and Cuell;" but, of what has been done since, and how the money paid is being disposed of; and, if such complaint is "discreditable," I am quite ready to submit the decision to any candid reader of your valuable Journal. * * * Since the report of the general meeting in Dec. last, was issued, not a sentence has appeared respecting the success, or otherwise, of the company's operations. I have had a few "extracts" from the captain's letters, sent me by the purser—for which I give him credit—but why is there not a report sent to the *Mining Journal* every fortnight, for the information of the shareholders generally, without putting them to the trouble of writing to the purser or captain for it? Will the "Director-General" of the company allow this to be done, and then he will not have further complaints from—A SHAREHOLDER. *London, March* 11.

THE ACCIDENT AT EARL BURLINGTON'S QUARRY, BROUGHTON.

SIR,—I must beg you to correct a statement which appeared in your paper of the 28th ult., under the head, "Mine Accidents," where you state—"*Broughton:* G. Richardson was killed in one of Earl Burlington's quarries." I am happy to say the extent of the accident was a simple fracture of the leg, and that the man is reported to be doing well. *There has not been a single loss of life at these works for many years,* and I believe there are few places where such a number of men are employed, and so few accidents occur as at these quarries. *Grassington, near Skipton, March* 11. STEPHEN EDDY.

MINE ACCIDENTS.

Par Consols Mine, St. Austell.—J. Hambly fell down the shaft, and was killed.

Hetton Colliery.—G. Watson and A. Burdis were killed by an explosion.

Moorsley Colliery.—W. Best was killed by a fall of coal and stone.

Isabella Pit, South Hetton.—W. Reed was crushed to death by a fall of stone.

Delabole Quarry.—W. Ede was killed while working here.

Old Buffery Colliery, Dudley.—N. Roberts was killed by a fall of coal, at Mr. Hayden's pit; D. Carrington and J. Turner, had a very narrow escape.

Keswick.—Mr. J. Hewitson was killed at the Castle-head Stone Quarry.

Wolverhampton.—W. Morgan was thrown from a skip and killed.

Kingswinford Colliery, Dudley.—B. Flavell was killed by a fall of coal.

Hartshill Colliery, Dudley.—J. Shakspeare was killed by a fall of ironstone.

Recca Slate Quarry.—A labourer, named Irish, came to his death in the following shocking manner:—Irish, with two workmen, had been drawn up a shaft to the surface, while two other men were left in the shaft to fire two holes, which had been made; after the holes had been fired, Irish, with a companion got in the kibble to descend again, when they had been let down about 15 ft., another shaftman, named Petherbridge, caught hold of the rope, for the purpose of slipping down into the kibble with the other two men; the rope being wet, Petherbridge could not stay himself, and went down with such force, that he knocked Irish down the shaft, who fell 150 ft., and was dashed almost to pieces; he was taken to the surface, but life was gone. Petherbridge and the other man kept their hold fast, and were saved.

Bury.—W. Lomax was killed by a fall of roof, at Capt. Fold's Colliery, Heap.

Lower Caal Mines.—An explosion of fire damp took place at the above works, on Wednesday last. The noise was so great that the men who were working at another pit at some distance heard it. We hardly know with what truth, but it is said, the men might have avoided the calamity, as they were apprised of their danger. More than 12 persons are sufferers, and one of them, a young man of about 22 years of age, is dead. Several of the poor men are burned very seriously.—*Sheffield Iris.*

THE COAL MONOPOLY IN FRANCE.

We have, on several occasions, adverted to the monopoly existing on the part of the coal mine proprietors of the Loire and St. Etienne. The subject is creating a very great sensation among the mining and manufacturing interest generally throughout France; for, although a commission has been appointed by Government to fully inquire into the oppression likely to ensue from this combination of a company, self-constituted of some of the leading and most influential capitalists of the Kingdom—not satisfied with having monopolised the extensive coal beds of the Loire, St. Etienne, and Rive de Giers, out of the hands of their former possessors, they are trying by every means which capital can command to get possession also of the coal mines of Burgundy. Many petitions have been addressed to the Minister of Commerce from the Chambers of Commerce of Lyons, St. Etienne, Mulhouse, and other large mining and manufacturing districts, praying that a stop would be put to this monopoly before their industry would be ruined, in consequence of the high price of not only the fuel itself, but the want of cheap means of conveyance—as this said company, not content with usurping the working of all the coal mines, had also got possession of the railway from St. Etienne to Lyons, and the canal of Givors—thereby monopolising the land, as well as water-conveyance, in their own hands, to the great detriment of every branch of industry. The members of the Chamber of Commerce of the department of the Upper Rhine, have sent in a very spirited address to the Minister of Commerce and Agriculture, setting forth the injury that this association of speculators over the coal basins would have, not only on the industry of the department of the Rhine, but every part of France, where mineral fuel is required, and, as wood had become so scarce and dear, the inhabitants generally were accustoming themselves more and more to the use of coal in their domestic operations.

The principle of associations, which alone permits of the execution of great public undertakings, ought always to be encouraged by Government; but when this principle degenerates into sordid stock-jobbing and monopoly, prejudicial to public morals and general interest, it then becomes the bounden duty of the Government to interfere and adopt those legislative measures to put a stop to so injurious a system, for the welfare of the country. The department of the Upper Rhine consumes 1000 barges of coal annually, or 100,000 to 120,000 tons. This quantity is yearly on the increase, as coal is being more substituted than ever for wood, in every branch of industry and private use. This coal is chiefly obtained from the basins of St. Etienne and Burgundy, which led to the manufacturing and mining industry of the Upper Rhine, to try to get some of their coal at a lower rate, from the coal mines of la Sarre, in Alsace, being much nearer, and possessing an easy means of conveyance. This monopolising company of all the basins of St. Etienne, and shortly all those of Burgundy, is likely to have a most prejudicial effect on our commercial prosperity, as their grand object is to make most exorbitant profits. From an official return made by the Chamber of Commerce of St. Etienne, it appears that a coal mine, which sold four years ago for 28,000*l.*, has been resold by the company, in shares, for the high sum of 68,000*l.* The same exorbitant profits are also applicable to many other mines in the hands of the company, and as they hold the whole of them, they are thus enabled to charge what prices they think proper for the coal to the trade.

It is well known that, according to the law of the 21st of April, 1810, art. 31, the state has reserved to itself the whole of the mining property of the kingdom, and grants a concession to parties at a very moderate tax, or duty, on condition that they shall be worked for the benefit of the public at large. Although a private individual may discover a mine on his own estate, the Act is such, that he has not the right to work it, nor even the right of any preference shown him to obtain the grant, or concession. The import duty, more or less high, according to localities, imposed upon the entry of foreign coal, has been for the purpose of protecting those who have grants of French coal mines from foreign competition; it is, therefore, clear, that these measures were never intended to encourage monopoly and stock-jobbing, at the expense of the public interest at large. The quality of the coal, which comes from the basin of St. Etienne to the Upper Rhine, has already undergone an increase in price at the pit's mouth of 25 per cent. more than it was before this monopoly existed; and if the company succeeds in making arrangements with the coal mine proprietors of Burgundy, which is more than probable, so as to induce them to enter into this compact, nothing will prevent them rising the prices, so that there will be no limit, until other coal pits can be brought into competition with them. As far as regards the Upper Rhine, where the coal furnished from St. Etienne, according to former contracts, is worth at present from 1*l.* 2*s.* 6*d.* to 1*l.* 8*s.* 4*d.* per ton; the price may be increased to 1*l.* 12*s.* 6*d.*, before the coals of Sarrebruck can enter into competition with them; and as in the above prices the expense of carriage enters for a large portion, the price may be nearly doubled at the pit's mouth, without the slightest fear of competition in the present state of things.

The utter ruin and closing of the different establishments, only appears likely to put a stop to the success of this monopoly. It being proved that all mines are public property, and that the public consequently ought to derive all the benefits possible, from being in the vicinity of a colliery, it is to be known whether a party, who has the grant of working it, has the power to make the whole (or part) of his interest in it to a company that has assured itself the entire monopoly of the coal basin. The Minister is, therefore, bound to prevent this coalition, for the purpose of raising the price, and the means of conveyance. It is to be hoped that the Minister of Public Works and Mines, and Minister of Commerce, will give it their most serious consideration. Since writing the above, a most forcible petition has been forwarded to Government, by the municipal council of St. Etienne, showing that because Count Mole, Odilon Barrot, and other influential deputies, who have the majority of the Paris press at their command, such a monopoly ought not to be tolerated, and praying the Chamber of Deputies not to allow this company to have either the railway from Lyons to St. Etienne, with all its branches, or the Canal de Givors, in their own hands. The subject is one of great importance, and the Government must investigate the grievances complained of—however favourable they may be to encourage those who have this monopoly in their hands, contrary to all ordonnances issued by Napoleon, or even his present Majesty Louis Philippe, as regards mining concessions in France.

THE FOREST OF DEAN "FREE MINING" QUESTION.

VICE-CHANCELLOR SIR J. WIGRAM'S COURT—MARCH 11-12.

THE ATTORNEY-GENERAL *v.* JACKSON.—This was an information filed by the Attorney-General against the defendant, George Henry Jackson, who had purchased from two of the free miners of the Forest of Dean the right of working the mines in that locality. The object of the suit was to try the validity of an agreement for the payment of a certain rate per ton for the back working of a particular quarry in the Forest of Dean mines by the defendant, in consequence of which alleged agreement he had been included in and had been declared entitled to the benefits of an award made by the Dean Forest Commissioners appointed in 1838 by the 1st and 2d Vict., c. 43. It was stated that the Crown, prior to the passing of this statute, claimed to be entitled to all the soil and minerals in the Forest of Dean, except where certain rights had been granted out to other persons under former grants from the Crown; and certain privileges had been given to persons called free miners in the hundred of St. Briavel's. The free miners were persons who had been born in that hundred, who had attained the age of 21 years, and who had worked for the space of a year and a day in any one of the mines within the hundred. Their right was stated to having been of this nature—namely, to entitle four of them to take possession of a certain gale or quarry, a portion of the mine extending over a radius of 25 yards, the Crown being entitled to put in what was termed a fifth man, or to receive a fifth part of the profits of working. The four free miners formed a species of partnership, either working the mines themselves, or granting permission to do so to other persons, which permission was generally confirmed by the Crown. This was stated to be the practice down to April, 1833, when the Crown refused to confirm the grants of the right of working the gales, and the parties were in fact, though not in law, treated by the Crown as mere trespassers. The defendant had purchased from two of the free miners subsequently to 1833.—The claim of the free miners themselves extended over the whole hundred of St. Briavel, except to church-yards, orchards, and old enclosures, which were mentioned in two statutes passed in the 20th of Charles II., and in the 48th of George III. In 1838 two acts were passed by the Legislature, the one empowering the Commissioners of Woods, Forests, and Land Revenues, to confirm the titles to, and to grant leases of, encroachments in the Forest of Dean; the other for regulating the opening and working of mines and quarries in the Forest of Dean and the hundred of St. Briavel's. The latter act was passed for the purpose of settling disputes which had previously existed between the free miners and the Crown. It recited that the Crown was seised of the soil of the forest, of the timber, and of the minerals within or under the forest, subject to certain alleged rights of common; that certain privileges had been claimed by persons in the hundred of St. Briavel's, calling themselves free miners, to open mines and quarries, and to work the same according to alleged usages and customs; that those customs were uncertain and undefined, and that it was expedient that they should be revised, altered, and amended. The act appointed three commissioners for the purpose of making an award, the object of which was definitively to settle the rights of the parties, as between themselves and the Crown. The three commissioners were Mr. T. Sopwith, of Newcastle-upon-Tyne, a mining engineer; Mr. Protyn, of Gloucester; and Mr. John Buddle, of Wallsend, mining engineer. They were empowered by the act to make an award, setting out the mines and bounds of each gale or work, and it was declared that the persons entitled to quarries which were to be defined, set out, and specified in the award, should hold the same for 21 years, paying to the Crown, or to the gaveller, or deputy gaveller of the forest, such rents as in any award should be specified. The gales claimed by the defendant Jackson had been taken possession of by two of the miners in the hundred of St Briavel, and they had, in 1836, sold it to him, who continued working the mine down to 1841, when the award of the commissioners was made. The particular gale belonging to Jackson was called the Old Sling Pit. Some correspondence had taken place between the clerk of the commissioners and the son of Jackson, as to the sum to be paid to the Crown in respect of the working of the mine by the defendant for the five preceding years. The bill stated that the defendant had agreed to pay 4*d.* per ton for 6000 tons of ore which had been taken from the Sling Pit, and that in consideration of of this the commissioners had included the defendant's name in the award, which gave him certain and definite rights, in reference to the future working of the mines, much more advantageous than would have been given had no such agreement been made and no undertaking to pay the above amount per ton.

Mr. ROMILLY and Mr. WOOD appeared in support of the information, and contended that the Court would decree a specific performance of the agreement, and would not allow the defendant to take the benefit of the award without performing the agreement, which might be considered as the basis of the terms upon which the award had been made.

Mr. WOOD and Mr. GOODEVE, for the defendant, argued that the evidence failed to prove the fact of an agreement to pay the sum mentioned. It merely consisted of letters addressed by the clerk of the commissioners to the defendant, whose son it was sought to characterise as an agent. They relied upon the Statute of Frauds as rendering such an agreement of no validity; and they further contended that the commissioners had no authority to make any agreement, they being entrusted with a judicial office, having no discretion or power to give or withhold the award upon the compliance or non-compliance with certain conditions. It was also insisted that the utmost extent of the agreement, if it were proved to have been made, and if it were valid, was merely to render an account of the past workings.—The defendant's case is not yet concluded.

BRYMBO MINERAL AND RAILWAY COMPANY.

THE VICE-CHANCELLOR OF ENGLAND'S COURT—MARCH 13.

LEISHMAN *v.* ROY.—Mr. James Parker said the parties in this case, being shareholders in the Brymbo Mineral and Railway Company, in which an injunction had lately been granted, had since arranged their differences amicably, the defendants having purchased the interests of the plaintiffs, who therfore ceased to be shareholders. Under these circumstances, it was arranged that the injunction should be dissolved.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Twelve o'clock.

Bank Stock, 7 per Cent., shut
3 per Cent. Reduced Ann., shut
3 per Cent. Consols Ann., 95⅛ 6⅛
3½ per Cent. Ann., 98 ⅛ 7⅛
Long Annuities, shut
India Stock, 10¼ per Cent., shut
3 per Cent. Consols for Acc., 96⅛ ⅝
Exchequer Bills, 1000*l.*, 34 7 pm.
Belgian Bonds, 4½ per Cents., 97
Dutch, 2½ per Cent., 59⅛ 60
Brazilian, 5 per Cents., New, 82½
Cuba Bonds, 6 per Cent., —
Chilian, 6 per Cents., 98 9
Colombian, 6 per Cents., —
Mexican, 5 per Cents., 31⅛ ¼
Spanish, 5 per Cents., 26 ⅝
Portuguese, 4 per Cents., 56¼
Russian, 5 per Cents., 108½

MINES.—On a perusal of our mining news, it will be found that this kind of investment is still in the ascendant. Several interesting discoveries have lately been made, which hold out very promising hopes of successful results, and proportionate profit to the shareholders. In the share market business has been brisk, although prices have remained firm. *Bona fide* transactions have taken place in Callington, Caradon Copper, Condurrow, East Tamar, Herodsfoot, Lamerhooe, Wheal Maria, South Trelawney, Tokenbury, and Wheal Mary Ann, at our quotations this day.

RAILWAYS.—The share market has been extremely dull, and very few transactions have taken place, except in well-established lines. The result of the Parliamentary committees has been as follows:—London, Warwick, Leamington, and Kidderminster, the Standing Orders not complied with; the Sligo and Shannon, Galway and Kilkenny, Great Munster, and Cork, and Killarney, not complied with; the Glasgow Harbour, Grand Junction Railway Terminus, London, Salisbury, and Yeovil, Manchester and Southampton, Standing Orders dispensed with, and the parties allowed to proceed with their bills; the Charing Cross Bridge Company have obtained power to sell and dissolve the company; London and Birmingham Extension, do. Leamington Extension, and purchase of Aylesbury branch, Orders complied with; Birmingham, Stour Valley, and Wolverhampton, complied with; Morecombe Railway complied with; and also the following—Manchester and Lincoln Union, Arbroath and Forfar, Leeds and Thirsk, Glasgow, Garnkirk, and Coatbridge Extension, St. Albans, Luton, and Dunstable, Guilford, Chichester, and Portsmouth, North of Norfolk, Edinburgh and Granton amendment, and Great Grimsby, Louth, Horncastle, Lincoln, and Midland Junction. The Oxford, Witney, Cheltenham, and Gloucester, had not complied with Standing Orders.

The following bills were read a second time in the House of Commons, and committed:—Chichester, Portsmouth, and Fareham; Congleton and Crewe; Derby and Crewe; Dover and Deal; Eastern Union; Ely and Bury; Great Grimsby and Sheffield; Gravesend and Rochester; Huddersfield and Sheffield; Liverpool and Bury and Manchester Amalgamation; Mitcham and South Western; Monmouthshire and Bugby and Huntingdon; Dundee and Arbroath; Stafford and Peterborough; and the London and York; Direct London and Portsmouth, and Sheffield and Lincolnshire Junction were read a third time and passed.

The following meetings have been held during the week:—A meeting of the shareholders in the London and Birmingham was held on Monday, to give the directors power to confirm a preliminary agreement for purchasing the Trent Valley Continuation line, a resolution to which effect was passed unanimously.—The half-yearly meeting of the shareholders of the London and Croydon Railway Company was held on Tuesday, when a dividend of 10*s.* per share was declared. The atmospheric system had, as far as completed, worked satisfactorily, and was expected to fully answer the expectations entertained.—A meeting of the Derby, Uttoxeter, and Stafford Railway took place on Tuesday, when it appeared that the deposit of 2*l.* 12*s.* 6*d.* had been paid on 17,000 of the original shares; the receipts had been 44,456*l.* 18*s.* 2*d.*; outlay, 5852*l.* 1*s.* 3*d.*—leaving a balance of 39,104*l.* 16*s.* 11*d.*, which would enable the committee to return to the shareholders 1*l.* 12*s.* 6*d.* per share—leaving 11,000*l.* to meet liabilities.—On Wednesday, a meeting of the West London Railway proprietors was held, when it was found that the affairs had not been finally wound up, but were expected to be so in a few weeks, and if the London and Birmingham Company succeeded in obtaining their bill for extending the line to the Thames, by the Kensington Canal, the shareholders of the West London Railway would reap great advantage.—Yesterday a numerous meeting of the shareholders in the South Western Railway was held at the Bridge House Hotel, to adopt resolutions, and a petition to Parliament in favour of the extension from the York-road and Hungerford-bridge to London-bridge. An amendment was proposed, to the effect, that the extension would be injurious to the inhabitants, which, however, after a stormy discussion was negatived, and the resolution for the petition carried.

MESSRS. LAMOND'S SALES.—TUESDAY.—South Midland (2*l.* 2*s.*), 3*l.* 5*s.*; Anglo Belgian (4*l.*), 2*l.*; London and York—half shares (2*l.* 10*s.*), 2*l.* 6*s.*; Dunstable, London, and Birmingham (5*l.* 5*s.*), 4*l.* 10*s.*; Whitehaven and Furness (4*l.*), 3*l.* 4*s.*; Bourdeaux, Toulouse, and Cette—Espelette's (2*l.*), 2*l.* 3*s.*; Caledonian—half shares (2*l.* 10*s.*), 2*l.* 15*s.*; Vale of Neath (2*l.*), 2*l.* 8*s.*; Richmond (10*l.*), 15*l.*; Chester and Holyhead (20*l.*), 19*l.* 10*s.*; Northern and Eastern—new (11*l.*), 17*s.*; Constituted Northern of France (5*l.*), 15*l.* 18*s.*; Eastern Union Norwe[illegible] (2*l.* 10*s.*), 2*l.* 10*s.*; Ditto, Cambridge to Ely (2*l.* 10*s.*), 2*l.* 5*s.*; North Ke[illegible] 1*s.*

MINES.—Asturian[illegible]; West Wheal Jewel, 2*l.* 13*s.*

MISCELLANEOUS.—We[illegible]as Co. (3*l.*), 2*l.*; Thames Plate Glass Co. (100*l.*). 130*l.*

FRIDAY.—Manchester and Southampton (2*l.*), 2*l.* 1*s.*; Waterford and Kilkenny (5*l.* 10*s.*), 4*l.*; Shrewsbury, Wolverhampton, and South Staffordshire Junction (2*l.* 10*s.*), 2*l.* 4*s.*; North Staffordshire, Charnel, and Potteries (2*l.* 2*s.*), 5*l.* 15*s.*; Manchester, Buxton, and Matlock (2*l.* 2*s.*), 7*l.* 10*s.*; Birkenhead, Lancashire, and Chester (2*l.* 15*s.*), 4*l.* 10*s.*; Chester and Holyhead (20*l.*), 20*l.*; Dublin and Galway (8*l.*), 2*l.* 6*s.*; South Wales (5*l.*), 4*l.* 5*s.*; Aberdeen (10*l.*), 8*l.* 10*s.*; South Midland (2*l.* 2*s.*), 3*l.* 7*s.* 6*d.*; London and York—half shares (2*l.* 10*s.*), 2*l.* 6*s.*; North Kent (2*l.* 10*s.*), 2*l.* 5*s.*; Shrewsbury and Birmingham (2*l.* 10*s.*), 2*l.* 19*s.* 6*d.*; Edinburgh and Perth (3*l.*), 2*l.* 10*s.*; Liverpool and Leeds (2*l.* 12*s.* 6*d.*), 2*l.* 6*d.*; Newry and Enniskillen (4*l.* 10*s.*), 3*l.* 1*s.*

LEEDS, THURSDAY.—Since we last wrote, the market has taken a more decidedly lower tone, and prices have been worse; in many cases it has been impossible to make sales; yesterday and to-day rather more firmness has been shown, but there is no sign of buoyancy or animation as yet; it is, however, satisfactory to find that the downward movement is at least arrested for the present; the next change depends upon the complexion of the American news. West Riding Unions have been permitted by the select committee on Standing Orders to commence *de novo*, and as the opposition of the Leeds and Liverpool, and it is said also of the Bradford and Wakefield, has been removed by a prudent compromise with these companies, the bill may now be considered as safe; it will, however, it is said, be delayed rather late in the session. Huddersfield and Manchesters have dropped from 6¾*l.* prm. to 2*l.* prm. Huddersfield and Sheffield from 11*l.* pm. to 7*l.* prm. Thirsks are offering at 20*s.* dis. Leeds and Bradford are in demand at 27*l.* prm., and appear to have seen their lowest. Many of the new schemes are winding up their affairs; the conclusion of some of them, we imagine, is not very satisfactory to the unfortunate scrip holders. R. B. WATSON, TOOTAL, & BARFF.

HULL, THURSDAY.—West Riding Unions have improved very much, both in character and price, and 4*7l.* is freely offered for large lots, at which, however, the holders do not seem inclined to part with them. Liverpool and Leeds, which were sellers yesterday at 1*l.*, are to-day in request at 2½*l.*, and done thereat, in consequence, of course, of the arrangement with the West Riding Union.

PRICES OF MINING SHARES.

Shares.	Company.	Paid.	Price.
BRITISH MINES.			
235	Andrew and Nangiles	25	55
1000	Barristown	4	250
4000	Bedford	2½	5½
128	Besore Lead Mine	—	35
320	Birch Tor Tin Mine	10½	12
8000	Blaenavon	50	40
100	Botallack	175	300
120	Brewer	—	25
10000	British Iron, New, regis.	10	20
—	Ditto ditto, scrip	10	21
128	Budnick Consols	—	30
100	Bwich Cwmerfin	20	200
1000	Callington	19	32
256	Caradon Consols	45	80
256	Caradon Copper Mine	9¼	6¼
256	Caradon Mines	44	36
256	Caraden United	49	20
256	Caradon Wh. Hooper	11	15
1000	Carn Brea	15	100
114	Charlestown	—	240
256	Chyprize	—	50
1900	Combmartin	5½	6
128	Comfort	—	44
5000	Con. Tretoil Mining Ass.	3½	1¼
128	Condurrow	25	50
2560	Cook's Kitchen	—	6
1000	Copper Bottom	1	5
3200	Cornubian Lead Co.	3	1¼
128	Cosheen	20	200
240	Cruddock Moor	9	65
128	Creeg Braws	120	80
500	Cubert Mine	10	56
1024	Devon & Courtney Con.	2	4
1000	Dhuroite	2	5
186	Delcoath	—	80
10000	Durham County Coal	45	9
128	East Pool	5	55
9000	East Tamar Consols	1	3
—	East Wheal Albert	1	5
256	East Wheal Alfred	6	12½
94	East Wheal Crafty	—	450
256	East Wheal Kitty	¼	¼
128	East Wheal Rose	50	1500
123	East Wheal Seton	2½	16
512	Fowey Consols	—	80
20000	Galvanised Iron Co.	10	10
10000	Gen. Mining Co. for Irel.	¼	¼
1000	Godolphin	—	35
256	Gonamena	19	120
128	Gover	23	200
244	Grambler & St. Aubyn	—	40
100	Great Consols	1000	400
256	Great Calestick Moors	—	11
2560	Great Mitchel Consols	—	2
100	Grogwinlop	5	20
1000	Gunnis Lake	1½	3
128	Hallenbeagle	—	50
1000	Hanson	5	1
1000	Harrowbarrow Old Mine	2½	3
1000	Harrowbarrow Consols	2½	2½
800	Hawkmoor	3	10
6000	Heigaston Down Con.	1	2
256	Herodsfoot	9	13½
10000	Hibernian	12½	1
1000	Holmbush	14	96
256	Ivy Tor	1½	5
1200	Kirkcudbrightshire	1½	1½
2048	Lamerhooe Wh. Maria	2½	9
128	Lanarth & Penstruthal	—	150
200	Larkholes	1	3
160	Levant	—	150
1000	Lewis	5	6
128	Ludcott	3	3
2800	Marke Valley	10	4½
20000	Mining Co. of Ireland	7	12½
1000	Nant-A'r-Nelle	2	2
200	Nanterrow Consols	10½	10
128	North Fowey Consols	10	30
100	North Pool	11	40
70	North Roskear	10½	600
256	North Treburget	2½	4
100	North United	41	45
128	North Wh. Providence	2½	10
256	North Wheal Rose	22½	40
15000	Northern Coal Co.	23	2
600	Old Delabole Slate Co.	25	45
128	Par Consols	—	500
256	Penhallow Moor	15	5
100	Penrhiw	30	65
128	Pen-y-Cefn Mine	50	55
512	Plymouth Wh. Yeoland	1½	3½
10000	Rhymney Iron	50	33 4
256	Rose Consols	10	7
1000	Rosewall Hill	1	2½
1024	Roscarrock	2½	3
2560	Silver Valley	2	2
256	Sourton Consols	2½	5
128	South Caradon	5	450
260	South St. George	9½	11
800	South Towan	10	1¼
256	South Trelawney	6½	25
128	South Yeoland	16½	28½
128	South Wheal Basset	—	220
124	South Wh. Francis	—	90
1034	South Wh. Maria	—	2
15000	Southern & Western, Irish	—	—
256	South Wheal Rose	2	3

Shares.	Company.	Paid.	Price.
BRITISH MINES—continued.			
256	St. Austell Consols	0	25
1000	Stray Park	43	24
9600	Tamar Consols	2	1
6000	Tincroft	7	15
256	Ting Tang	67	35
128	Tolcarne	124	80
1024	Trelawney Consols	1½	1
5000	Treleigh Consols	6	3½
256	Treaow Consols	—	170
96	Treavean	10	300
120	Trethellan	5	67½
120	Tierskey and Barrier	61	140
128	Trewavas	—	32½
128	Trewellard	12	25½
4000	United Mills	5	4
180	United Mines	300	200
128	West Basset	10	28
256	West Caradon	20	370
128	West Cargoll	3	13
512	West Fowey Consols	40	35
—	West Kekewich Consols	—	24
256	Wheal Kekewich	4	15
256	West Providence	—	24
200	West Seton	—	42
120	West Trethellan	5	40
256	West Wh. Friendship	3	11
3845	West Wheal Jewel	11	31
2560	West Wh. Maria	1	2½
2560	West Wh. Mitchell	—	3
256	West Wheal Sheppard	—	15
256	West Wheal Tolgus	214	25
256	West Wheal Treasury	12	5
240	Westercake	3	3
6000	Wicklow Copper	5	17
256	Wheal Albert	10	12
128	Wheal Acland	13	14
256	Wheal Blencowe	—	29
256	Wheal Boscastle	3½	9
128	Wheal Catherine	0	5
256	Wh. Cleveland	2½	5
68	Wheal Clifford	—	450
1024	Wheal Concord	3½	5
256	Wheal Fortescue	14	20
384	Wheal Franco	20	50
256	Wheal Gill	17½	15
1000	Wheal Harriet	1	2½
128	Wheal Henry	—	16½
169	Wheal Hope (Zennor)	23	25
256	Wheal Hope	7	14
256	Wheal Jane	6	26
265	Wheal Kendall	11½	5
1024	Wheal Maria	1	400
4000	Wheal Martha Consols	4	3
1024	Wheal Mary	1	14
256	Wh. Mary Ann	5	58
1024	Wh. Mary (Calstock)	2	4
256	Wheal Mary Consols	18	14
256	Wh. Mexico	3	6
256	Wheal Norris	9	102
128	Wheal Penrose	—	5
128	Wheal Pollard	9½	30
128	Wheal Prospect	4	9
128	Wheal Providence	4	5
128	Wheal Reeth	1	60
256	Wheal Robins	13	5
128	Wheal Rose	40	50
256	Wheal Salusbury	13	5
512	Wheal Sarah	2½	5
99	Wheal Seton	150	100
256	Wheal Sisters	25½	85
128	Wheal St. Cleer	21½	50
128	Wheal Trannack	19	25
260	Wheal Trelawny	7½	350
256	Wheal Treveena	4	4
256	Wheal Trewennan	—	10
128	Wheal Venland	2½	5
256	Wheal Victoria	2	5
127	Wheal Virgin	—	20
1024	Wheal Walter	2½	3
256	Wheal Williams	4	21
FOREIGN MINES.			
5000	Altea Mining Company	14½	1
15000	Asturian Mining Co.	5	3½
10000	Anglo-Mexican Co.	100	3
3374	Ditto Subscription	25	4
2000	Bolanos	150	4
12000	Ditto Scrip	15	4½
10000	Brazilian Imperial	21	4½
10000	Cata Branca (Braz. Co.)	6½	—
12000	Cobre Copper Co.	40	25
8500	Columbian Co. regis.	55	3½
5000	Ditto Scrip	—	—
10000	Copiapo Mining Co.	14	1½
20000	General Mining Ass'n.	20	14
5051	Mexican Company	59	6
12000	Mocambas & Cocaes	25	4½
29320	El del Monte, regis.	98½	3½
	Ditto unregistered		3½
	Ditto Red Debentures	—	19
	Ditto Black ditto	—	47
	Ditto Loan Notes	150	117
7000	Royal Santiago	10	12
2000	Pachuca Mines	3	3½
11000	St. John del Rey	15	9
43174	United Mexican	28½	4

LATEST CURRENT PRICES OF METALS.

LONDON, MARCH 13, 1845.

		£	s.	£	s.	d.
IRON—Bars	Wales	*ton*	8 15	— 9	0	0
"	London	"	0 0	— 9	15	0
Nail rods	"	"	0 0	— 10	10	0
Hoop (Staf.)	"	"	11 15	— 12	0	0
Sheet	"	"	12 15	— 13	0	0
Bars	"	"	0 0	— 11	0	0
Welsh cold-blast foundry pig		"	5 0	— 5	15	0
Scotch pig *b*, Clyde			3 10	— 3	12	6
Rails			10 15	— 11	0	0
Russian, CCND *c*			0 0	— 16	0	0
"	PSI		0 0	— 16	0	0
"	Gourieff		0 0	— 14	10	0
"	Archangel		0 0	— 13	12	6
Swedish *d*, on the spot			11 10	— 11	15	0
"	Steel, fagt.		0 0	— 16	5	0
"	" kegs *e*		15 0	— 15	0	0
COPPER—Tile *f*			0 0	— 92	0	0
Tough cake			0 0	— 93	0	0
Best selected			0 0	— 96	0	0
COPPER—Ordin. sheets		*lb.*	0 0	— 0	0	10½
"	bottoms		0 0	— 0	0	11½
TIN—Com. blocks		*cwt.*	0 0	— 5	0	0
"	bars		0 0	— 5	1	0
Refined			0 0	— 5	2	0
Straits *h*			0 0	— 4	5	0
Banca			0 0	— 4	8	0
TIN PLATES—Ch., IC *i*, box			1 10	— 1	12	0
"	1X		1 16	— 1	18	0
Coke, IC			1 6	1	7	0
"	IX		1 12	6 1	13	0
LEAD—Sheet *k*		*ton*	0 0	— 20	10	0
Pig, refined			0 0	— 21	10	0
"	common		0 0	— 19	10	0
"	Spanish, in bd.		17 15	— 18	0	0
"	American		0 0	—

RAILWAY SHARE LIST.

RAILWAYS.	Paid	Closing pr. last week.	Closing pr. last night.
Aberdeen	£5	10¾	—
Amber, Nottingham, Boston, and Erewash Junction	2½	1¾	1¾
Armagh, Coleraine, and Portrush—25*l.* shares	1¼	¼	¼
Birmingham and Gloucester—100*l* shares	100	—	125
Birmingham and Oxford Junction—20*l* shares	2	2¾	2⅞
Bristol and Exeter—100*l* shares	70	87	82½
Bristol and Gloucester—50*l* per share	30	—	56*
Caledonian—50*l* per share	5	12	11¾
Cambridge and Lincoln—25*l* shares	1¼	—	—
Chelmsford and Bury	1¼	¼	—
Chester and Holyhead—50*l* shares	15	20	20½
Cork and Killarney—50*l* shares	2½	—	—
Cork and Waterford—25*l.* shares	1¼	—	¼
Cornwall—50*l* shares	5	—	—
Derby, Uttoxeter, and Stafford	2½	—	—
Direct Northern—50*l* shares	2½	2¾	2
Direct Manchester (Remington's)—20*l* shares	2½	1¼	1
Ditto Bostrick's	5½	3¾	3⅞
Dublin and Belfast Junction—50*l* shares	10	3¾	4¼
Dublin, Belfast, and Coleraine—50*l* shares	2½	—	1½
Dublin and Galway—50*l* shares	4	4¼	2½
Dundalk and Enniskillen—50*l* shares	2½	—	—
Eastern Counties—25*l* shares	14*l* 16*s*	21¼	21
East Lincolnshire	1¼	2⅞	1⅞
Edinburgh and Glasgow—50*l* shares	50	73	72
Edinburgh and Perth	2½	—	2½
Exeter, Yeovil, and Dorchester—50*l* shares	2½	—	—
Goole and Doncaster—20*l* shares	42*s*	¾ pm.	¾ pm.
Grand Junction—100*l* shares	100	215	213*
Grand Union (Nottingham and Lynn)	1¼	1	1
Great Grimsby and Sheffield—50*l.* shares	5	—	—
Great Southern and Western (Ireland)—50*l.* shares	15	17¼	17
Great North of England—100*l* shares	100	215	214
Great Western—100*l* shares	80	160	145
Guildford, Farnham, and Portsmouth—50*l.* shares	5	4¾	4¾
Hull and Selby—50*l* shares	50	104	102
Isle of Axholme	2½	—	—
Lancaster and Carlisle—50*l* shares	25	55	51
Leeds and Carlisle	2½	—	—
Leicester and Birmingham—20*l* shares	22*s*	—	½ dis.
Leicester and Bedford—20*l* shares	22*s*	½ dis.	½ dis.
Leicester and Tamworth—20*l* shares	42*s*	½ dis.	1 dis.
Liverpool and Leeds Direct—50*l* shares	2½	1¾	2½
Liverpool, Manchester, and Newcastle Junction	1¾	3	3
London and Birmingham	stock.	222	218½
London and Birmingham Extension—25*l* shares	1¼	—	—
London and Blackwall	Av. 16*l* 13*s* 4*d*	8	8
London and Brighton—50*l* shares	50	62½	64
London and Croydon	Av. 13*l* 15*s* 9*d*	21¼	21
London and Greenwich	Av. 12*l* 15*s* 4*d*	—	9½
London and South Western	Av. 41*l* 6*s* 10*d*	76	76½
London and York—50*l* shares	2½	3¾	3¾
London, Warwick, and Kidderminster—50*l* shares	2½	—	1½
London, Salisbury, and Yeovil—50*l* shares	2½	1¼	—
Londonderry and Coleraine—50*l* shares	2½	4½	5½
Londonderry and Enniskillen—50*l* shares	5	—	—
Lynn and Ely—25*l.* shares	5	—	9½
Lynn and Dereham—25*l* shares	5	4½	8
Manchester and Leeds—100*l* shares	82	130	131
Manchester and Birmingham—40*l* shares	40	—	76
Manchester, Buxton, and Matlock—20*l* shares	42*s*	¾ pm.	1¼ pm.
Manchester and Southampton	2	2¼	2
Midland	Stock	145¾	145
Ditto Birmingham and Derby	Stock	116	115
Midland Great Western (Irish)—50*l* shares	2½	—	—
Newcastle and Berwick—25*l* shares	10	19¾	20
Newcastle and Carlisle—100*l* shares	160	—	109*
Newcastle and Darlington Junction—25*l* shares	25	44	44½
Ditto New (Brandling)—25*l* shares	20	38	36
Newport and Abergavenny	2½	—	—
Newry and Enniskillen—50*l.* shares	2½	2¾	—
Newark, Sheffield, and Boston—25*l* shares	2½	1¾	1¾
North British—25*l* shares	17½	25	25½
North Devon	2	1	—
Northern and Eastern—50*l* shares	45	—	71*
North Kent and Direct Dover—50*l* shares	2½	2¼	2¼
North Staffordshire—20*l* shares	42*s*	3¾ pm.	3¾ pm.
North Wales—25*l* shares	3½	—	2¾
Norwich and Brandon—20*l* shares	18	24	22½
Northampton, Banbury, and Cheltenham	2	1⅝	1⅝
Oxford, Worcester, and Wolverhampton	13½	13	12⅝
Perth and Inverness	2½	1⅝	1⅝
Portsmouth Direct—50*l* shares	3½	3¾	3⅝
Preston and Wyre—50*l* shares	50	35	34
Richmond—20*l* shares	5	16½	15½
Rugby and Huntingdon—20*l* shares	2	1¼	1
Scottish Central—25*l* shares	7¼	14½	13½
Scottish Midland—25*l* shares	5	—	6¼*
Sheffield and Manchester—100*l* shares	100	—	122*
Shrewsbury and Birmingham	2½	2½	2¼
Somersetshire Midland	2½	1½	—
South Devon—50*l* shares	25	34	—
South Eastern and Dover	Av. 33*l* 2*s* 4*d*	37	36½
South Midland—20*l* shares	42*s*	1½ pm.	1⅝ pm.
South Wales—50*l* shares	5	5	4
Staines and Richmond—20*l* shares	1	1¼	2⅝
Trent Valley—20*l* shares	5	26⅞	27½
Trent Valley and Holyhead Junction—20*l* shares	2½	1½	2½
Vale of Neath	2	—	2½
Waterford and Kilkenny—20*l.* shares	3	—	—
Welsh Midland	2½	1¼	1¼
Wilts, Somerset, and Weymouth—50*l* shares	2½	2	2¼
Yarmouth and Norwich—20*l.* shares	20	—	25
York and Carlisle	2½	2	1¾
York and North Midland—50*l* shares	50	98	96
Ditto Selby—50*l* shares	30	—	73

FOREIGN RAILWAYS.

Boulogne and Amiens—20*l* shares	10	10¾	10¾
Bordeaux and Toulouse and Cette (Mackenzie)—20*l* shares	2	2	2
Bordeaux, Toulouse, and Cette (Espalete)—20*l.* shares	2	—	2½
Central of Spain—20*l* shares	2	⅝	⅝
Dutch Rhenish—20*l* shares	5	6¼	6¼
East Indian	¼	⅝	⅝
Great Northern of France (constituted)	5	15⅝	16¼
Great Western Bengal	¼	—	¾
Great Western Canada—22½ shares	1	2⅝	2⅝
Jamaica and South Midland Junction—20*l* shares	1	—	1¼
Jamaica North Midland	1	—	¾
Louvaine and Jemappe—20*l* shares	4	2	1½
Lyons and Avignon—20*l* shares	2	2½	2
Luxembourg	4	2⅝	2
Namur and Liege—20*l* shares	4	2½	2¾
Orleans and Vierzon—20*l* shares	10	19½	19½
Orleans and Bordeaux—20*l* shares	6	11¾	12¼
Paris and St. Quentin—20*l* per share	2	—	—
Paris and Orleans—20*l* shares	20	52	51
Paris and Rouen—20*l* shares	20	42	40½
Rouen and Havre—20*l* shares	18	29¾	29½
Sambre and Meuse—20*l* shares	6	—	4¾
Strasburg and Basle—14*l* shares	14	—	—
West Flanders	4	3¾	3¾

* Prices obtained from country brokers—no business doing in the London market.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rway.	Present actual cost.	Last Div.	*Traffic Returns.* 1846	1845
Arbroath and Forfar	15	£140,782	2½ *p.c.*	£ 187 0 0	£ 137
Chester and Birkenhead	15	520,640	2½	551 3 8	434
Dublin and Drogheda	32	631,258	4	621 2 11	523
Dublin and Kingstown	6	349,736	9	691 16 6	590
Dundee and Arbroath	17	153,598	4	251 12 10	243
Durham and Sunderland	19	302,118	2	643 3 9	450
E. Counties & North. & East.	124½	4,090,328	5	6664 18 0	3512
Edinburgh and Glasgow	46	1,686,226	6	2965 11 7	2070
Glasgow, Paisley, and Ayr	51	1,104,773	6	1952 17 5	1544
Glasgow, Paisley, & Greenock	23	806,134	2	807 6 9	706
Grand Junction Company *	98	2,597,317	10	—	7917
Gravesend and Rochester	6	85,00)	5	153 7 2	—
Great North of England	45	1,296,196	6	—	1722
Great Western	220	7,717,043	8	16075 6 5	13166
Hartlepool	—	—	—	1259 18 3	—
London and Birmingham†	176	6,997,065	10	33486 7 4	14336
London and Blackwall	4	1,078,851	1¼	712 6 2	696
London and Brighton	56	2,653,673	4	3588 3 4	2634
London and Croydon	10	842,592	3½	1196 2 5½	806
London and South-Western	93	2,620,724	9	5432 9 2	4494
Manchester and Birmingham	31	1,959,062	6	3967 9 2	3340
Manchester & Leeds	51	3,972,869	8	5457 2 1	6532
Manchester, Bolton, & Bury	10	805,968	5¼	939 3 9	874
Midland Company	179	6,284,631	6	14915 14 3	9180
Newcastle and Carlisle	61	1,137,385	5	1778 3 8	1381
Newcastle and Darlington	22½	1,156,379	8	2879 4 8	1095
Newcastle and North Shields	7	316,869	5	446 15 0	329
Norfolk	—	—	—	1194 7 4	205
North Union, Bolton &c.‖	32	1,060,551	6¼	—	1277
Preston and Wyre	22	230,014	2	477 10 8	318
Sheffield and Manchester	19	1,313,225	5	1616 19 1	634
South-Eastern and Dover‡	88	4,284,924	3½	5159 6 6	4170
Taff Vale	30	611,073	3¼	900 3 2	791
Ulster	26	358,353	3	641 11 8	518
Yarmouth and Norwich§	20½	230,037	5	—	205
York and North Midland	53	1,379,951	10	4393 13 11	3221
Paris and Orleans	82	2,082,916	8	5820 16 11	3977
Paris and Rouen	84	1,995,306	9	5697 0 0	3940

* The traffic return of this company is now included in the London and Birmingham.
† Including the Grand Junction Company. ‡ Including the Greenwich line.
§ Included in the Manchester and Leeds. ‖ Included in Eastern Counties.

THE IRON TRADE.

[From the *Birmingham Journal* of this day.]

Owing to the pressure on the money market, by the locking up of so large an amount of railway deposits, and the state of our relations with the United States, the iron trade of South Staffordshire has been, for the last few weeks, in a very unsettled position. So greatly has this state of things influenced the transactions of the manufacturers, that for some time past it has been found impossible to effect cash sales on almost any terms. There is, however, no symptom, so far as we can ascertain, of prices giving way.

Orders still continue to come in—the materials for making iron maintain their former high price—and from the increased demand for labour, no one dreams at the present moment of reducing workmen's wages; added to this the expectation of a favourable report by the French Government with respect to the superiority of British iron for railway purposes, has produced increased confidence in the stability of the trade. With all these favourable circumstances, the scarcity of money is being severely felt, crippling more or less every department of our manufactures, and this notwithstanding the actual redundancy of capital in the country. We have, however, an assurance, coming from a quarter likely to be well informed as to the intentions of the Bank of England, that by next quarter day there will be such a relaxation of the present pressure on the money market as will give an impetus not only to the iron trade of our own district, but to every other important branch of industry in the country.

With these facts before us, and the large supplies of iron required for railways actually in progress, we cannot help regarding the prospects of the trade as in every respect satisfactory and encouraging. Indeed, so strongly does this feeling exist, that the principal manufacturers would reject any proposition which had for its object the lowering of prices.

STANNARIES of CORNWALL.—In the Vice-Warden's Court.

TAYLOR *v.* BLAKE, AND HARWOOD AND ANOTHER.

WHEREAS, the Vice-Warden did, on the third day of March instant, by his Order and Decree in the above-named cause, Order and Decree that A SALE be made of the parts, or shares, and interest of the said respective Defendants, Blake and Harwood, of, and in, WHEAL GILL MINE, in the Parishes of Saint Ive and Saint Cleer, within the said Stannaries, under the direction of the Registrar of this Court; and that the proceeds of such Sale should be applied by the said Registrar in the manner directed by the Decree in the above-mentioned cause.

Notice is hereby given, that, pursuant to the said Decree, a PUBLIC AUCTION will be holden at the Red Lion Inn, in the Borough of Liskeard, on SATURDAY, the 28th day of March instant, at Three o'clock in the afternoon, for selling, in such lots as shall be then and there determined on, SIX (256ths) PARTS, or SHARES, of, and in, the said Mine, and the like parts, or shares, of, and in, the ores, halvans, machinery, and materials, and other effects, upon, and belonging to the said Mine.

For further information, application may be made to Mr. BOASE, solicitor, Liskeard, or to Mr. CHILCOTT, solicitor, Truro.—Dated the 10th day of March, 1846.

COPPER ORES.

Sampled Feb. 25, *and Sold at Andrew's Hotel, Redruth, March* 12, 1846.

Mines.	*Tons.*	*Price.*	*Mines.*	*Tons.*	*Price.*
Carn Brea	108	£4 0 6	Par Consols	53	£8 19 6
ditto	88	6 9 6	Luvant	68	4 16 6
ditto	86	5 9 6	ditto	61	7 14 0
ditto	77	8 0 0	ditto	54	5 13 0
ditto	75	4 2 6	ditto	52	3 15 0
ditto	46	12 7 6	Trenow Consols	84	6 19 6
ditto	27	2 2 0	ditto	50	7 8 0
Wh. Prosper	75	4 12 0	ditto	27	7 9 6
ditto	53	4 1 6	ditto	21	3 0 6
ditto	50	4 6 6	Botallick	50	6 14 6
ditto	49	10 8 6	ditto	48	7 5 6
ditto	27	1 14 6	ditto	46	6 16 6
ditto	14	1 15 0	ditto	47	3 11 6
Wh. Friendship	42	2 14 6	Wh. Busy	45	2 13 6
ditto	40	3 2 6	ditto	35	0 15 0
United Hills	94	3 19 6	ditto	18	2 5 0
ditto	81	3 17 6	West Wh. Treasury	66	4 5 0
ditto	77	4 16 6	Wh. Buller	34	3 16 6
ditto	48	4 6 6	ditto	10	4 1 0
Wh. Sparrow	32	2 11 0	Wh. Rodney	17	3 12 0
Par Consols	106	4 18 0	East Relistian	4	3 14 0
ditto	86	4 17 6	Wh. Weeth	3	4 7 0
ditto	75	7 8 0	East Crinnis	1	4 15 0

TOTAL PRODUCE.

Carn Brea	507	£3026 13 6	Botallick	171	£1095 18 6
Wh. Prosper	330	1598 11 6	Wh. Busy	98	187 2 6
Wh Friendship			West Wh. Treasury	66	280 10 0
United Hills	332	1348 5 0	Wh. Buller	44	170 11 0
Wh. Sparrow			Wh. Rodney	17	61 4 0
Par Consols	320	1550 15 6	East Relistian	4	14 18 0
Levant	235	1297 18 0	Wheal Weeth	3	13 1 0
Trenow Consols	182	1221 5 0	East Crinnis	1	4 15 0

Average standard, 10*l*7. 9*s*.—Average produce, 7*l*.—Average price per ton, 57. 5*s*. 0*d*.—Quantity of ore, 2330 tons.—Quantity of fine copper, 184 tons 1 cwt.—Amount of money, 12,271*l*. 8*s*. 6*d*.—Average standard of last sale, 143*l*. 5*s*. 0*d*.—Average produce ditto, 6¼.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	210¼	£1341 9 3
English Copper	459¼	2058 6 9
Vivian and Sons	363¾	1510 8 3
Freeman and Co.	202¾	1433 2 3
Grenfell and Sons	235	1212 9 0
Crown Copper	10	438 1 0
Sims, Willyams, and Co.	92¾	707 7 6
Williams, Foster, and Co.	696	3570 4 6
Total tons	2330	£12,271 8 6

Copper ores for sale on Thursday next, at Pearce's Hotel, Truro.—Mines and Parcels.—Wheal Maria 1003—West Cara lon 427—South Towan and Wheal Lydia 301—Poldice 300—Fowey Consols 290—West Wheal Jewel 121—Wh. Jewel 120—Bedford United Mines 101—Holmbush 95—Wheal Maiden 55—Tregothnan Consols 2.—Total, 2815 tons.

Copper ores for sale on Thursday week, at Pearce's Hotel, Truro.—Mines and Parcels.—United Mines 876—Consolidated Mines 825—Tresavean 536—South Caradon 318—Perran St. George 292—Par Consols 290—Trethellan 212—Treleigh Consols 158—Wh. Ellen 129—Wheal Sisters 107—Wheal Andrew and Nangiles 65—Wheal Anna 62—Wh. Comfort 38—Williams's East Downs 30—Wheal Rock 15.—Total, 3943 tons.

COPPER ORES

Sampled Feb. 18, *and Sold at Swansea, March* 11, 1846.

Mines.	Tons.	Prod.	Stand.	Price.	Mines.	Tons.	Prod.	Stand.	Price.
Knockmahon	130	8¾	103¾	£6 16 6	San Jose	81	11¾	89¼	£7 18 6
ditto	116	9¼	101¾	7 15 6	ditto	72	18¾	84¼	13 10 6
ditto	115	10	100¾	7 15 6	ditto	29	18½	82¼	13 1 6
ditto	111	10¼	100¾	7 19 0	Berehaven	121	9¼	99	7 10 6
ditto	95	9¼	101¾	7 15 6	ditto	120	9¼	99¼	7 8 6
ditto	86	10¼	101¾	8 0 0	ditto	100	9¼	100	7 7 6
ditto	77	10	99¾	7 14 0	Cronebane	53	7	103¼	5 0 0
ditto	76	9¼	98¾	7 10 0	ditto	50	6¾	106¼	4 19 0
ditto	71	8	103	5 19 6	ditto	37	5¼	110¾	4 5 0
ditto	70	7¾	103¾	5 15 6	ditto	26	6	108¾	4 5 0
ditto	31	10¼	98¼	7 14 0	ditto	23	5¼	110¼	3 19 0
Santiago	93	24¼	82	17 17 0	ditto	12	6¾	106¼	4 19 0
ditto	88	24¼	82¼	17 13 6	Cloga	68	3¼	128	2 4 6
ditto	77	24¼	82¼	17 14 0	ditto	45	3¼	124¼	2 5 9
ditto	76	21¼	82¼	15 11 6	ditto	44	3¼	122	2 6 6
ditto	71	22	81	15 11 6	ditto	40	3¼	99¾	6 2 0
ditto	69	24	81	17 3 6	ditto	9	8	97¼	6 5 6
ditto	44	22¼	81	15 16 0	Havana	72	11¼	90	8 2 0
Cobre	110	12¼	86¼	8 17 0	ditto	61	10¾	90	7 6 0
ditto	105	12¼	89	9 4 0	Llandidno	76	2	100¼	6 15 6
ditto	100	12¼	87¼	9 0 0	Lackamore	60	10¼	98¼	7 15 0
ditto	90	13	87	9 1 0	ditto	6	4	118¼	2 10 0
ditto	56	12¼	88	8 19 0	Hafodyllan	41	5	113	3 8 0
Ballymurtagh	71	5¼	114	4 0 6	ditto	9	8¼	98¼	5 15 6
ditto	66	4¼	116¼	3 8 6	Arditally	46	11¼	97¼	8 14 0
ditto	60	2¼	143¼	1 14 0	ditto	2	29¼	86¼	23 2 0
ditto	40	3¼	126	2 12 6	Vigra & Cloga	18	2¼	137¼	1 10 6
ditto	35	4¼	120¼	3 0 6	ditto	16	3¼	131¼	1 17 0
ditto	11	4¼	113¼	3 0 6	Gloster Slag	17	6¼	101¼	4 2 0
ditto	9	5¼	112¼	3 10 0	ditto	3	18	89	13 18 0
San Jose	109	11¼	89	8 4 0	Sicilian	2	16¼	84¼	11 14 0
ditto	101	11¼	89¼	7 18 0					

TOTAL PRODUCE.

Knockmahon	978	£7222 8 6	Havana	133	£1028 10 0
Santiago	508	8574 4 0	Llandidno	76	514 18 0
Cobre	461	1155 4 0	Lackamore	68	485 0 0
Ballymurtagh	292	869 4 0	Hafodyllan	50	191 7 6
San Jose	392	3686 12 0	Artilly	48	446 8 0
Berehaven	341	2539 0 6	Vigra and Cloga	34	57 1 0
Cronebane	201	930 10 6	Gloster Slag	20	111 8 0
Cloga	176	472 6 6	Sicilian	2	23 8 0

Total tons, 3780.—Total amount, £31,327 10*s*. 0*d*.

Copper ores for sale April 1.—Cobre 86, ditto 81, ditto 79, ditto 76, ditto 69, ditto 64 ditto 54, ditto 14.—Cuba 73, ditto 71, ditto 70, ditto 67, ditto 66, ditto 58.—Chili 100, ditto 99, ditto 21, ditto 8, ditto 2.—Knockmahon 97, ditto 83.—Tigrony 73, ditto 60, ditto 11, ditto 9.—Kaw-aw 35, ditto 16.—Cronebane 40.—French 19.—Batterson 13.—Abbey Regulas 6.—Spanish 5.—Australian 2.—Total, 1628 tons.

COAL MARKET, LONDON.

MONDAY.—Price of coals per ton at the close of the market:—Burnhope Hartley 13 6—Davison's West Hartley 15—Hastings' Hartley 15—Holywell Main 14 6—New Tanfield 12 6—Original Tanfield 12 6—Ord's Redheugh 12 6—Taylor's West Hartley 14 6—Tanfield Moor 16—West Wylam 14 6—Eden Main 13 6—Wall's End Hilda 13 6—Killingworth 13 9—Riddell's 13 9—Belmont 14 3—Haswell 15 9 to 16—Hetton 15—Lambton 14 9—Russell's Hetton 14 9—Stewart's 15—Kelloe 14 9—Adelaide Tees 14 9—South Durham 13 9—Tees 15 3—West Cornforth 13 6—West Hartlepool 13 6—Adelaide 14 6—Derwentwater Hartley 13—Hartley 14—Sidney's Hartley 15—West Hartley Netherton 14 9.—Ships arrived, 154; sold, 80; unsold, 71.

WEDNESDAY.—Buddle's West Hartley 14 9—Carr's Hartley 14 9—Chester Main 13—Davison's West Hartley 15—Dean's Primrose 13—Holywell Main 14 6—New Tanfield 12 6—Oakwellgate Main 12—Original Tanfield 12—Ord's Redheugh [redacted]—Smith's Pontop 12—Taylor's West Hartley 14 3—Townley 13 3—West [redacted]est Wylam 14—Eden Main 13 6—Cowpen Hartley 14 9—Derwentwat[redacted]6—West Hartley Netherton 14 6—Wall's End Killingworth 13 3—Newmarch[redacted]ckington 12—Braddyl's Hetton 14 6 to 14 9—East Hetton 13—Haswell 15 6—Hetton 14 9—Lambton 14 3—North Hetton Lyon's 13 6—Russell's Hetton 14 3—Shotton 14—Stewart's 15—Kelloe 14 3—West Hartlepool 13—Adelaide 14 6—Adelaide Tees 14 6—Cowndon Tees 13 6—Eden Hart epool 12 6—Gordon 13—Seymour Tees 14—Tees 15—Tees Hetton 12—West Cornforth 13—Whitworth 12 6—Ships arrived, 226; sold, 128; unsold, 106.

NOTICES TO CORRESPONDENTS.

"A Shareholder in Foreign Mines" is informed, that it was fully expected, from the last advices received, that the machinery for Mr. Hopkins's new process of extracting the silver from the ore by mechanical means, at the Colombian Mines, by which quicksilver will be dispensed with, and more of the precious metal retained, was expected to be completed in January last. In the course of another packet or two, we hope to be able to give a favourable report of the result.

PALLADIUM.—We have received from a French correspondent, a communication respecting the discovery of rich deposits of this metal in a gold mine at Gongo Soco, which he appears to think is quite a new feature therein, and, in his observations thereon, treats it as if it was a recently found metal. Palladium was discovered by Dr. Priestly, we think in 1806, and since the working of the Gongo Soco Mines, the jacotinga has uniformly produced a proportion of platina and palladium; we can assure him there is nothing novel connected with the subject. As our correspondent appears not to be quite aware how these metals are invariably found, using the terms, "palladium mines," "gold ores," &c., promiscuously, we would just inform him, that gold, platina, and palladium, are uniformly found in a native state in *grains*, never combined with the acids, as even silver, and all the baser metals are, as carbonates, sulphurets, oxides, &c.—but whether the matrix be a soft jacotinga, as at Gongo Soco, or a hard ferruginous sandstone, as at St. John del Rey, or in veins of quartz, as occasionally at both these, and many parts of South America; it is embodied in a native state, and can be separated by mechanical means, such as stamping, washing, &c.

RAILWAY FINANCE.—We had prepared some observations on Mr. Morrison's able pamphlet on this subject, but as that gentleman's motion, which was to have come before the House of Commons last evening, is postponed until Thursday next, we postpone any further consideration of the measure until our next.

*** *We would request the particular attention of our readers to the fact, that the* MINING JOURNAL, *when bound in volumes, forms a work of great utility for reference; and, to facilitate which advantage, a compendious Table of Contents is issued at the close of each year's publication. The Index for* 1845 *accompanied the last Journal of the year, published on the* 27*th December.*

THE MINING JOURNAL

And Atmospheric Railway Gazette.

LONDON, MARCH 14, 1846.

In last week's Journal we inserted an article, from official returns, on the manufacture of iron in France, which is of considerable importance, as showing the position in which that country is placed, in respect to the furnishing a necessary supply of fuel for smelting a sufficiency for the present extraordinary demand. It appears, from the statistical portion of the document in question, that, since 1840, there has been a considerable falling off in the native fuel produce of France, in proportion to the growing demand; and that importations have been progressing in a far greater ratio, notwithstanding that coals have been largely substituted for wood in the manufacture of iron. The ironmasters of France are, doubtless, labouring under considerable difficulties, arising from the scarcity, and consequent dearness, of native fuel, and in many departments the furnaces are at a stand still, even for coal to keep them in blast, while wood is getting annually more scarce. The manufacturers are thus obliged to import extensively from England or Belgium, to enable her even partially to supply the deficiency. A large portion of charcoal, from the wild and still extensive forests of Germany, and her importations from all foreign ports has been estimated at the enormous value of 3,000,000*l.* sterling per annum. From 1839 to 1843 her consumption of charcoal was 25,774,831 cwts.; coal and coke, 31,157,962 cwts.; wood, not made into charcoal, 1,743,345 cords—together of the estimated value of 11,599,628*l.* sterling. Alive to the disadvantageous position in which the country is placed, while possessing extensive mineral treasures, which cannot be developed through the scarcity of fuel, a large portion of the capitalists of France are devoting their attention to the better working of the coal deposits, to enable them to increase the supply of iron, to meet, in some measure, the growing demand; but with all the energies displayed, and notwithstanding all that capital and science can avail, it must take years before France can even meet her own demand for iron and coal, much less become an exporting country.

On many occasions, in former Numbers of the MINING JOURNAL, have we been called upon to remark on the enormous amount of capital which has been sunk in foreign mines, for the extraction of the precious metals, without any adequate return. Some of these mines, it is true, have for a time paid, and are still paying, dividends; others have, during a long course of ruinous expenditure, given occasionally, "like angels' visits, few and far between," indications causing a gleam of hope, only to be shrouded in deeper despair; while the majority have proved to the treasure-seeking capitalist nothing but a foreign grave for British wealth. Under such inauspicious circumstances, it gives us much pleasure, at all times, to be able to record any discoveries which may be made, at all likely to secure any return to the unfortunate holder of shares in foreign mining companies, which, although they commenced under the most sanguine expectations of large returns, have gradually declined, until scarcely anything but the name exists. Such has been the case with the National Brazilian Mining Association, and we are happy to record a discovery, which will be found in another column, that may, probably, prove of great importance to the shareholders. It appears that, as long since as 1835, the Cornish captain employed on the Cocaes Mines discovered a vein of jacotinga, giving signs of gold, but being at the time engaged in following up other trials, it was left unassayed and unnoticed; within a recent period, one of the hired negroes appears to have discovered that there was something in this vein worth a little research, and with some others managed to obtain some of the precious metal by washing at their leisure hours. The secret at length got wind, and the vein has been investigated and opened upon; it is 12 fms. wide, and has been traced at surface 37 fms.: it consists of a friable jacotinga, composed of alternate minute layers of quartz, and very brilliant mica, containing gold in grains from the minutest particles to the size of a small grain of rice. We have availed ourselves of an opportunity of examining some specimens of this jacotinga, taken, we believe, from near the wall of the vein, on which exploration had only just commenced, at the date of the last advices; and from its highly congenial nature and construction, and auriferous appearance, we trust we shall have to congratulate the company on a new era in their affairs—one which will at length make them a rich return for their long dormant capital.

At a moment, when railway communication and the increase of speed, with economy in the consumption of fuel, interests so many, we can very well imagine that the universal line of steam communication, where no monopoly exists—the wide ocean, and her tributary streams—should attract the attention of capitalists, as to the most ready and economical mode of transit. Some years since it would have been comparatively futile to contemplate, or predict, the results which have followed; and even the General Steam Navigation Company, which is acknowledged as being one of the most valuable accessories to commercial enterprise, was, in our recollection, at one time considered as holding out such slight prospects of advantageous results, that it was difficult to find purchasers at almost a nominal price for the shares. Since its establishment, and the successful issue attendant, we find that others have followed in their wake—the Oriental, the Peninsular, the West India Royal Mail, and other companies, have been formed; while the River Thames affords a practical illustration of the rapid advances attending steam communication, if we may judge from the vast number of steamers plying, and the low fares charged—a distance of 26 miles being accomplished after the rate of one farthing per mile; while it would form a series of interesting and valuable statistics, if information were acquired as to the quantity of coal consumed by steamers from the ports of London and Liverpool, the relative price per ton, and the aggregate power of the engines employed. With the importance to be attached to the economy in fuel, whether considered as to the quantity consumed, its relative price, or the properties it is found to possess, there is another consideration, with refer-

ence to the port of London, and others immediately connected with populous towns, which must not be lost sight of, more especially when the attention of the Legislature has been directed to the question of the prevention of smoke, particularly in densely-populated districts; its effects even on the banks of the Thames, and the quantity of carbon emitted from the funnels of steamers, and consumed by the population which crowd the metropolis, being too well known and admitted to call for remark. The ill effects arising from this deposit of carbonaceous matter, or the admixture with the atmosphere of this and other injurious components of the coal used, have been oft commented upon by medical men, and those who have consulted the health of populous towns, and actuated by a spirit of philanthropy: not to advert to the economy which might attend the introduction of a superior article, or, rather, a smokeless coal, with equal power—thus remedying those evils which are found to exist, and so highly prejudicial to the community at large. We have been led to make these observations, from the circumstance that the subject under notice is one which involves the considerations of economy and health; while, as regards steam communication with foreign climes, we know that much importance is to be attached to the economy of stowage, as regards the weight and bulk of the material—not to advert to the first cost, the superiority of the article, or the absence of smoke, and whereby the loss, attendant on its discharge or emission, is obviated. Without further dwelling on points which can alone be considered as introductory to the notice we purpose giving of the results of an experimental trip, with the view to test the properties of CAMERON'S steam coal, we will at once proceed to the matter under consideration.

We may then observe, that the tract whence the coal submitted to trial was obtained, is situate within six miles of the rising sea-port of Swansea, in South Wales, now belonging to CAMERON'S Coalbrook Steam Coal, and Swansea and Loughor Railway Company, on terms which are held to be highly advantageous. A line of railway, 9½ miles in length, from the collieries to Swansea, is contemplated, and application made to Parliament for the necessary powers, which will not only enable the proprietors to put their coal on board at Swansea, or to supply the works there at a reduced cost, but, from estimates made, is calculated to yield large returns to the shareholders on the capital employed. The quantity of coal, as we are informed, now in course of raising, is about 100 tons per diem, which will be much increased on the works becoming more extended—while a ready sale is found not only for the hand picked, or screen coal, but the mixed coal, as raised to surface; the small, or slack, being found to cake or form a body when submitted with the round coal or lumps, and placed under the boiler. Having said thus much of the nature of the coal and its locality, it is only necessary further to advert to the quantity which has been explored, and then proceed we to a brief notice of the test to which it was submitted on Wednesday last. There are three veins, or seams, of steam coal discovered—the aggregate thickness of which may be taken at 9 ft., which, taking 16,000 tons per acre, would give a total of 13,068,000 tons; and, from the peculiar properties of the coal, or rather that portion of the tract known as CAMERON'S steam coal, there being three beds, or seams, as already observed—little or no doubt can be entertained of its being brought into general use, from the economy in its application, and the regularity of its working. We may observe that, in addition to the coal thus applicable to steam purposes, there are three seams, or beds, which are found to be highly bituminous, extending over a space of 400 acres—being taken at 9 ft., the aggregate thickness would give 14,520 tons per acre, or 5,808,000 tons in the entire tract. However, it is to the steam coal, and the peculiar properties it possesses, we must direct our more immediate attention. The trial to which the coal was submitted on Wednesday, was of the most satisfactory nature; at the same time, that we feel called upon to state, that sufficient accuracy and attention to the test to which it was submitted, did not seem to us to have been taken to arrive at those precise results which we consider should ever attend a trial of this nature, and one to which so much importance is to be attached. In saying this, we would wish it to be understood, that we look at the value and importance of the use of this, or any other, superior description of fuel, not with reference to the mere question of *£ s. d.*, so far as the company is concerned, but as regards the economy in its consumption, whether as regards quantity or cost. The experiment was tried on board the *Lass o' Gowrie*, a small steam-vessel, or rather it might be designated a steam-tug, having two engines of 15-horse power each; the furnace bars, which were 18 in number, being at a distance of ½ in. from each other, and the bar 2 in. square. The quantity of coal put on board was 2 tons 8 cwts.; and upon carefully weighing the coal on the return of the vessel, 10 cwt. 3 qrs. 14 lbs. remained—thus making the consumption of fuel for the voyage, 1 ton 17 cwts. 14 lbs.

It is here necessary to state, that the furnaces were fired at half past 11, a.m.,—and although the distance to Gravesend may be taken at, say, 32 miles, no less a time than nine hours were consumed, from the time of starting, up to the return of the steam, attributable to delays and stoppages, and in no way arising from the want of power in getting up steam, which was most readily attained, the coal emitting an excessive heat, and working freely. On inquiry, it would appear that the quantity of coal consumed by the boat referred to, on an ordinary occasion—say, with a passage of six hours to and from Gravesend, would have consumed 2½ tons—thus it would appear, that with three hours more steaming, a saving of 25 per cent. has been effected; or, if the same time be observed, in both instances, taking of one-fifth, instead of one-third., an absolute advantage of 40 per cent. is evidently acquired. This, we must confess, appears astounding; but if the directors of the company would act on our counsel, we would suggest that a more careful and perfect trial be made under the inspection of an efficient engineer, who should be required to report the result of the test to which the coal is subjected. This leads us to a report which we have received, testing the several qualites of coal. It appears from experiments made at H. M. dockyard, Woolwich, with the steam coal under notice, and that of the Merthyr coal, that the following were the results:—Of the Merthyr coal 5 cwts. was consumed in getting up the steam—the time occupied being 1 hour and 20 minutes—and subsequently 27 cwts. 96 lbs. of coal were consumed in evaporating 13 tanks of water, weighing 1920 lbs. each, being 8 lbs. of water evaporated by each pound of coal,—the weight of clinkers was 41½ lbs., and the weight of ashes 175 lbs., there being but little smoke. In applying Cameron's steam-coal, to which our attention is directed, it occupies only 55 minutes in getting up the steam—4 cwts. 56 lbs. being consumed; and in evaporating the same quantity of water, as that cited, 23 cwts. 56 lbs. of coals were consumed, being 4 cwts. 40 lbs. less than Merthyr; while the water evaporated by 1 lb. of coal, was 9 lbs. 7⅞ ozs., being 1 lb. 7⅞ ozs. more—the weight of clinkers was 44 lbs., or 2½ lbs. more clinkers, and the weight of ashes was 115 lbs., being 42 lbs. less, *no smoke* attending the application of Cameron's coal. While treating on the relative properties or qualities of coal, we may further observe, on other tests by the Government, from which the following results are arrived at:—Carr's West Hartley evaporated 7 lbs. 5 ozs. of water, with 1 lb. of coal; Parson's Abbey Graigola, 8 lbs. 6 2-3ds ozs.; Hastings' Hartley Main, 6 lbs. 14½ lbs.; Merthyr coal, 8 lb.; Llangennec, 8 lbs. 14½ ozs.; and Cameron's Coalbrook steam coal, 9 lbs. 7½ ozs.—thus showing on the six several descriptions of coal, a superiority of the latter over the five former, in the ratio of 9 7½ to 7 14½. We have been induced to enter thus fully into the subject, from the importance to be attached to the economy in fuel, not only as regards its first cost, but the reduction in the quantity used, the saving effected in stowage, and moreover the absence of smoke; and in closing our remarks, which have been carried to a far greater length than we had intended, we have only to express a hope, that the attention thus bestowed and directed will attract that of parties interested in a matter which, whether as regards steam navigation, locomotive, or manufactures, must be held to be of the first moment, and of paramount importance.

By the New York packet *Rochester*, which arrived at Liverpool on Thursday last, we are enabled to give a few extracts from the American papers, up to the 21st ultimo, five days later than those previously received. The new tariff bill, reducing the duties on imports, and for other purposes, had been introduced by Mr. WALKER, the Secretary of State. The Americans, the same as the Government of England, are well aware that all high duties on the produce of foreign countries are prejudicial to their commercial intercourse with other nations. By the new bill now proposed it is enacted, that from and after the 1st of October next, in lieu of the duties heretofore imposed by law, the following duties shall be levied on metals and minerals:—Iron in pigs, bars, bolts, rods, slabs, hoops, brooms, or other forms not otherwise provided for; castings of iron and vessels of cast iron; old or scrap iron, muskets, rifles, and fire-arms, hard cutlery of all kinds; wares, articles, or manufactures of iron, steel, brass, copper, tin, pewter, lead, or other metal; silver plated wares in sheets, or other forms, argentine and albata; coal, coke, and culm—are to be admitted at 30 per cent. *ad valorem* duty. Copperas, or sulphate of iron, green vitriol, blue or Roman vitriol, or sulphate of copper, white vitriol, or sulphate of zinc, oil of vitriol, or sulphuric acid, arsenic, verdigris, bronze liquor, iron liquor, type metal, types (new or old), and stereotype plates, rods, bolts, nails, and spikes of copper, copper bottoms, still bottoms, copper in sheets (brazier's copper), and all other copper in sheets, steel in bars, plates, or sheets, lead in pigs, bars, or sheets, leaden shot, zinc and spelter, gold and silver leaf, bronze and Dutch metal in leaf, litharge, white and red lead, chromate of lead, sugar of lead, sulphate of barytes (crude or refined), calomel, and all other preparations of metals, unmanufactured, not otherwise provided for—with galvanised iron, commonly called patent galvanised tin plates, bismuth, orpiment, &c.—are to be admitted at 25 per cent. *ad valorem* duty. Copper ore, copper in pigs or bars, old copper, fit only for remanufacture, tin in pigs, bars, blocks, zinc, and spelter, old bells and bell metal for remanufacture, brass in pigs or bars, old brass and old pewter, only fit to be remanufactured, are to be admitted at 5 per cent. *ad valorem* duty.

While the question of free trade is more or less agitating all Europe, and while it forms a topic of such paramount interest in this country at the present moment, this forward move on the part of our trans-Atlantic neighbours, is of considerable importance, as tending to facilitate the commercial intercourse of the two countries,—and thus to bind us still closer in the bonds of amity and peace.

In another column will be found a report of the Hanson Mining Company, the prospects of which appear to be promising, and which, we were happy to see, passed off without those absurd charges against the directors, generally emanating from the smallest holders of shares, and defaulters in payment on calls, and the consequent recrimination and bickering which marked two other meetings at the same offices last week—the Callington and Lewis Mining Companies. A conversation, however, took place, respecting the remuneration to directors, on which we think it desirable to offer a few passing remarks. Mr. JAMES, a considerable shareholder in various undertakings, observed that he had heard it remarked, that other large mining companies were conducted on a much more economical scale than those in that office, and he thought one item which formed a ground of excess was—payment to the directors; as he considered, while the mine remained unproductive, gentlemen ought to give their services for nothing, and row in the same boat with the other shareholders, who, on the mine becoming productive, would amply reward them for past services, as well as fix a fair and liberal award for the future: he instanced a Joint Stock Bank and a Gas Company as cases in point. Now, with all deference to Mr. JAMES, we do not think them *cases in point* at all. In banks, gas, water, and insurance companies, and other well understood extensive commercial undertakings, wherever there appears an opening, if properly conducted, profitable returns may be almost securely calculated on by at least the second year, and directors can well afford to wait the full development of concerns, which hardly come withing the term *speculation*, with the reasonable hope of future liberal remuneration for their services. Not so with mining companies—all mines are speculative and uncertain undertakings: the period of first opening out a newly discovered lode, or of clearing up old workings for further discoveries, is that in which the duties of the directors are the most arduous, and their closest attention required. A mine *may* prove profitable the day the lode is cut through, as some few instances have proved; but it may be one, or five, or 10 years, before returns are made, or after being worked for a number of years, may be abandoned as unprofitable—who, then, is to remunerate the directors for their loss of time, their anxiety for the success of their efforts, and, in many cases, sums of money advanced from their own pockets to support the interest of the undertaking? The cases put forward by Mr. JAMES are totally irrelevant; and, on reconsidering the subject, we think that gentleman will see with us that, according to his views as expressed at the meeting, instead of "rowing in the same boat" with the shareholders, he would leave the directors to bear the largest portion of the common burden, and their labour in addition, while they are only to receive the same proportion with the former, of any benefits which *might* arise. We believe the majority of holders of mine and other shares are of this opinion—that with a direction consisting of men of character and standing, in whom confidence can be placed, that they will exert themselves for the general benefit, a fair remuneration is most conducive to the interests of all concerned.

In our columns of last week we gave the first part of a paper, read at the Philosophical Society, Newcastle-on-Tyne, by Mr. T. M. GREENHOW, on the Advantages of the Geometrical Railway, and in another page of our present Number will be found the conclusion of that paper, to which, with those that have already appeared, we direct attention. As interested, in common with our readers, in all improvements appertaining to mechanical appliances, we have ever endeavoured to ascertain the correctness of the principles laid down by the patentee, feeling assured that, should the advantages proposed be secured and rendered manifest, we should not only be executing our office, but, at the same time, be conferring a benefit on the public generally. With the view of arriving at correct data, we have, therefore, given place in our columns to all the arguments *pro* and *con.*, without at all advancing any opinion we may entertain, and thus leaving the system to stand entirely on its own merits. With such object we shall, on the present occasion, confine ourselves to a brief epitome of the matter, which has, in various shapes, been submitted to the public up to the present time.

Mr. C. H. GREENHOW, in his paper read at the Society of Arts, and in the several papers and letters which have appeared in our columns, assumes that he has secured the safety and comfort of the passenger, by the mathematical precision introduced into all the proportions of the carriages, taking the distance between the rails as the basis on which to found his calculations; at the same time, taking care that the mechanical arrangements are such as to insure a perfect action of the whole machine. The tyer of the wheel, we may observe, is fitted to the rail in such a manner, the one being convex and the other concave, that in every contingency they are adapted to each other—thus avoiding what now takes place on the sinking of a sleeper, or the loosening of a chair, on account of the imperfect adaptation between the wheel and the rail. By a peculiar method applied to the suspension of the carriages, he states that he has also made it more difficult for the centrifugal force to throw the carriage off the line, because the suspension gives the carriage a tendency to vibrate like a pendulum, in a direction opposite to that from which a momentum may be received, or in the same direction in which the centrifugal force would be diverted; but by putting a restraint on the pendulum, by the energy of the vibration, together with the weight thrown at the restraining point, it counteracts the attempt of the centrifugal force to raise up either side of the carriage, the effect of the pendulum being to vibrate underneath, while that of the centrifugal force is to throw over, acting from the same impulse in a directly different manner, and thus, by the reaction, securing the safe passage of the train. It has been contended, by many parties, that the centrifugal force does not endanger the safety of a body in rapid motion, nor had it ever been known to throw a train off the line. In reply to which Mr. GREENHOW observes, that on the speed of a train exceeding a certain ratio, the carriages became subject to the law of projectiles, and, consequently, are in great danger from any contingency occurring to divert the centrifugal force, which would most certainly throw the train off the line, unless the carriages had in themselves a power of reaction, receiving its impulse at the same time, and from the same cause, in such a manner, that in every case it must step in with certain effect, and restore their equilibrum.

Some others have contended that the round rail and concave tyer of the wheel would create more friction than in the present mode of construction; to this the reply is, that gravitation, acting always perpendicular to the surface, the pressure would only be for a small space on each side of the line on the top of the rail, perpendicular to its centre, the remainder of the concavity approaching to, and departing from, the convex surface of the rail, without coming into forcible contact; therefore, the friction is confined to the limited part of the surface on which is the actual pressure. In reply to the inquiry made, why the spoke is carried within the rail at an angle of 22½ deg.?—Mr. GREENHOW again observes, that had the spoke been perpendicular to the rail, on the slightest elevation of one side, the wheel on the other would have withdrawn from the rail in similar manner to a ball lifted perpendicularly out of a cup; and the reason he took the angle of 22½ deg., was, because a line drawn from the centre of the rail at that angle to the axletree meets at the same point the lines drawn from the extremities of the tyer—30 deg. without, and 90 deg. within the line. On the top of the rail, perpendicular to its centre, each of those lines being of precisely the same length, thus securing a true revolution of the wheel on its axis.

We have thus endeavoured to convey—as clearly as the *materiel*, with which we have been provided, will allow—a fair abstract of the case as it stands. Certain propositions are advanced by Mr. GREENHOW, founded on mathematical principles, and while such may be found good in theory, or on *paper*, it is, we admit, a question, whether in practise or on *iron*, the result contemplated may be arrived at. We cannot, however, but feel that the observations made, in opposition to the principle—and which indeed has, we must say, been fairly demonstrated by the models submitted—in a great measure tended to detract from that character which we have ever felt proud we might assume over other nations—that of "fair play."

It is indeed manifest that certain parties, who hold the office of practical engineers, are well disposed to object to the principle—while they do not attempt to raise the question, or the objection, they would present. Such course we can well imagine would emanate from parties who might be indisposed to the introduction of a principle which would in a measure affect their interests in a pecuniary point of view; and we are ready to admit, that it is somewhat hard to draw the line as regards parties interested, as to the advantages which might arise from any proposed measure, and that of parties advancing their capital.

We are, however, glad to learn, that the principle to which we have adverted, will, in all probability, be introduced at an early day in the House of Commons; and while we admit that many obstacles may present themselves from interested parties, yet we cannot but consider that the directors of the several companies, will at once put themselves forward, and, so far as the interests of the company are concerned, at once uphold a measure they may approve, and, at the same time, put forward their opposition to that to which they may object. We have only to observe, in conclusion, that, while directors of railways are honest, they ought to be firm. We say this with some reason, but with no disrespect.

PRICE OF IRON IN FRANCE.—Several sales have been entered into at St. Dizier for Paris, at the rate of 15*l.* 8s. 6d. for rock iron made by coal, delivered at St. Dizier. This is a rather serious fall, as the greater part of the forgemasters demanded from 16*l.* to 16*l.* 10s. per ton. It is, moreover, generally expected that a still further decline in prices will take place, and that it will only be the spring orders which may cause a temporary reaction. The following is the exact situation of the numerous furnaces:—Bienville is the only one whose fires have been in constant blast; all the other furnaces are without cast metal, and coal to make it. For some of them the working is by only half their fires—for others, two-thirds or three-fourths; whilst many have stopped their works entirely, until the coal supplies of 1846 make their appearance. A few fine days allured some of the melters to procure themselves some ore, but this article is generally extremely scarce. The price of carriage is seriously high—that of the ores from the mine *Bocardee* has doubled. In white cast metal nothing doing, there being no supply in the market, in consequence of the heavy contracts noticed before; flattened iron is in demand at 14*l.* 16s. per ton, delivered at St. Dizier. On the whole, the iron trade is in a most stagnant state throughout the country—not more than one-half the furnaces are at work, and those that are have not more than a quarter of their fires in full blast. The great difficulty of procuring ore, and metal, as well as coal, added to the exorbitant charge for carriage, either by land or water, keeps the markets very depressed.

TREWAVAS MINE.—A meeting of the adventurers is convened for the 17th instant, to be held at Pearce's Hotel, Truro—the notice having been signed by Mr. J. G. Plomer, the purser. The special object of the meeting is to take into consideration and determine upon acceding to the proposition of Messrs. Tweedy and Co., to take the bankers' account, on obtaining from the adventurers a guarantee—it being necessary, after the intimation at the last meeting, as reported in another column, to remove the account from the house of Messrs. Ricketts and Co. An important question arises in the consideration of this subject, as to whether, in giving a guarantee, such is confined to the proportion on the number of shares held by the respective adventurers, or whether it may be said to extend to "One and All," in which latter case it is a matter requiring serious consideration.

NEW MANUFACTURE OF NAPHTHA.—A manufacture of a novel character is about to be established at Weymouth, for the manufacture of a kind of naphtha, or oil; the bituminous clay, near the Burning Cliff, is the source from whence it is to be extracted. Several eminent chemists from France have been experimenting here for some time on its properties, and have now concluded a contract for large quantities. In order to carry out their speculations furnaces are to be erected forthwith, which, we hope, will furnish employment for our surplus stock of labourers.—*Sherbourne Journal.*

THE AMERICAN EXCAVATOR.—A steam excavating machine, upon which the railway labourers have bestowed the name of the "American Devil," is now being employed at Hull, in excavating the Victoria Dock. It was invented about eight years ago by a gentleman of New York, and has been extensively used in the formation of American railways. It consists of a portable steam-engine of about 16-horse power, and it is furnished with a crane, to which is attached a large square bucket of wood, armed with six tusks. These tusks pierce the earth, which at once fills the buckets, two buckets filling an earth waggon. The machine requires two engineers and three men, and does the work of 30 men; filling above 200 waggons per day, each waggon containing seven tons of earth.—*Newcastle Advertiser.*

The number of learned and literary societies in France amounts to 295, and out of this number 39 are royal societies.

Original Correspondence.

MINERAL RESOURCES OF IRELAND.—No. III.

Sir,—In continuing our mineral survey along the south and south-west coasts of the county of Cork, numerous veins and lodes of copper ores, beds and veins of manganese, and strata of excellent roof-slate, are perceived, or are easily traceable, by favourable indications. From Clonakilty to the Cappagh copper mines, near the village of Ballydahob, these may be said to be continuous. The Cappagh copper mines and slate quarries were formerly worked to some extent by the Mining Company of Ireland, under the name of the Audley Mines. They afterwards fell under the management of the West Cork Mining Company, but on terms most injudicious, and, as it afterwards appeared, most ruinous to the company; the cause of prolonged litigation, fatal alike to both parties, and of melancholy consequences to the labouring classes of miners, and the hundreds employed on these concerns, while in action. Your excellent Journal has had this subject so often placed in its proper light before the public, that it is quite unnecessary for me to allude further to the matter; at the same time, I refer some description of the nature and value of its mineral veins and deposits as a great mining concern, to a future letter, to be exclusively devoted to the subject.

In the neighbourhood of the Cappagh Mines, more westward, the Cosheen Copper Mines are advantageously situated on the sea coast, having a safe shipping harbour, with water power, and other auxiliaries, which have been put in requisition by its enterprising chief proprietor, Mr. Connell, and its respectable and practical managing agent, Capt. Thomas. This mine, in proportion to its extent of workings and machinery, has made considerable produce—several hundred tons of rich ores; the sales of which have regularly appeared in your Journal. The ore is chiefly of the purple sulphuretted description, varying, in its dressed state, from 12 to 45 per cent., and in its picked state from 50 to 60. There have been also some tons of the green carbonate of copper, or malachite, taken from this mine, from stones of which, slabs and many very beautiful ornaments have been fashioned; but its chief value, of high metallic per centage, is in its raising the poorer ores of the mine by mixture to a good standard. Not having viewed the underground works, I cannot describe either the width or number of workable lodes at present discovered; but, I understand, new discoveries have been latterly made of great promise, which, in addition to the workings on the old lodes, under the skilful management of Captain Thomas, must enhance the high character which the mine has already attained in the mining world—the price of its 20*l.* shares being, as appears by a reference to the share lists for some months past, as high as 200*l.*!

In proceeding coastways, west about 10 miles from Cosheen, we arrive at the picturesque and well-known extensive and safe shipping harbour of Crookhaven. A harbour of safety, indeed, and of a depth and extent of water sufficient for the heaviest war vessels. Such a haven in your rich, enterprising, and majestic country, would soon appear under other features—with a flourishing commercial sea-port on its deep coasts, and life, business, and activity, among its population; instead of its present inactive and melancholy appearance, notwithstanding *all* its natural advantages. There are several mineral veins of great promise on the peninsula of Crookhaven, which, with the geology of its coast, &c., deserve the marked attention of the practical and scientific miner. In the present letter, however, I mean to confine myself to some considerations on the character of its stratification, reserving to my next letter a full view of the range of its several lodes—their earthy and metallic contents, analyses of their ores, value in a commercial point, and other attendant considerations. The rocks of this district are chiefly of the argillaceous slate system, being composed of vast beds or strata of carbonated blue slate, greywacke, talc and chlorite schist, in which are, as parts of their constituent formation, thickly-studded plates of mica, sometimes giving the rocks the appearance of micaceous schist. The strata are generally regular in their bearing or range, east and west, and dip at angles north, somewhat variable, from 45 to 80, and in some cases to 85 degrees.

But in the position of the mineral lodes, to be referred to hereafter, a change takes place, which deserves the serious attention of the miner. The strata assume new positions, as it were, dipping from 45° to a perpendicular position, having dyke-like lodes of mixed quartz, talc, granular ores of copper, chlorite, &c., to a varied thickness from 1 to 10 feet, which produce in mass about 3 per cent. of copper. The lodes are found lying on or in these *dykes*, partaking of their dip and bearing, and affected more or less by their *hardness*, or compactness of mass. Green carbonate of copper oozes from these dykes, or walls, wherever they are exposed, giving notice of the contiguity of mineral or ore veins. Sometimes these dyke-like beds, or strata, squeeze, as it were, the lodes, even of some 6 feet width, or more, to a mere string; when in less than a fathom the same lodes swell out to a greater width, and then proceed in their regular range with scarcely the slightest deviation in angle.

In my next letter I will enter more minutely on the mineral character, &c., of the rocks and ore veins of this interesting coast, introducing, as I proceed, some notices of the promising and, certainly, well managed, mine of Dhurode, which is in this neighbourhood. St. Pierre Foley.

London, March 13.

VAPOUR OF ETHER ENGINE.

Sir,—A recent number of the *Mining Journal* contains the notice of a *vapour of ether engine*, by M. Trembley, of France. It is represented as having received the sanction and approbation of many of the chief *savants*, and to be an invention likely to be adopted by the Government of that country. Of the vast economy of fuel there cannot be a doubt. I had proposed the vapour of ether for the purpose in question, at least *fifteen years* ago, and thus long before its application as a substitute for steam had been mooted by any one. A *figure* of my vapour of ether engine may be seen in the *four* last editions of my *Manual of Chemical Experiments, Systematically Arranged*, and it may be added that an officer of the royal navy expressed himself to me in terms of commendation, as to its importance on shipboard, for the pumps—above all, in the storm. My vapour of ether engine is extremely simple, and there is no waste of the material. The vacuum produced by the condensation of the vapour of sulphuric ether approaches as near a torricellian one as any I know.

Portland-place, Hull, March 10. J. Murray.

WALL'S IMPROVEMENTS IN METALLURGY.

Sir,—As your correspondent, "An Ironmaster," in last week's Journal, in reply to some observations of mine in your valuable publication of the previous week, attributes to me motives which certainly do not exist, I trust you will allow me to say a few words in explanation. In the first place, I would appeal to any of your numerous readers whether a single sentence in that letter savours of the uncourteous? and I feel assured the general answer will be in the negative. With respect to the side-winded insinuation, that my letter was an attempt to obtain a knowledge of the system, that I might make use of the labours of Mr. Wall's researches; the charge is ridiculous, as "An Ironmaster" must be aware that the specifications of all patents are public documents, and, consequently, I need not have had reference at all to the pamphlet for any such information, had I entertained any such sinister intention. No, Sir; I wrote under the impression, which I still entertain, that while the patent laws remain in there present state (one which I confess I consider open to very considerable and beneficial alteration), by which an inventor to secure a patent must make his discovery known; and by which he always has his remedy for an infringement by action at law; if he does publish a work on the subject for the purpose of the more widely circulating the knowledge that such new discovery is in course of operation, the information conveyed should be explicit and distinct, and entirely free from all special pleading and attempts to mystify the subject. There is one part, however, of the letter of "An Ironmaster," with which I am well pleased—viz., that, respecting the new battery, "nothing can be more simple in principle, or less complex in construction;" and as it appears a lithographed drawing will accompany a second edition, I shall avail myself of its appearance for further information on the subject. My object in intruding on the columns of the press is solely for the purpose of eliciting scientific facts for the general good, and as an admirer of all really useful discoveries most happy shall I be to promote to the utmost of my power that under discussion, should it appear in practice to produce only a portion of those extraordinary effects which are attributed to it.—An Iron Smelter: *Tipton, March* 11.

DR. PALTRINERI'S APPLICATION OF POWER—SOCIETY OF ARTS.

Sir,—Having been present at the society's meeting on Wednesday evening last, allow me to make a few observations on Dr. Paltrineri's illustration of his spiral screw, which, acting at both ends, produces a much more than proportionate effect than when fixed at one end, and which appeared, according to Mr. J. S. Russell and others, to be "a puzzle." In most mechanical arrangements, action and reaction are nearly equal, but with respect to the screw, even as a spiral, I think it doubtful, whether in winding up the spring of a clock, near so much force is expended in two or three minutes, as is exerted by it afterwards during a week or more. The spiral spring being a screw wound on a cylinder, and having both its ends in action at one time, and as double velocities do not occasion a double amount of friction, I think we may fairly conclude that this is the cause of the extra effect produced—viz., raising twice the weight to *more* than half the height in less time. Having made some few remarks on the subject of the first paper on a machine for lace making, but which I was not allowed to finish—I wish not to be misunderstood, my endeavour was to enunciate the principle—that the excessive sedentary occupations of the present age are detrimental to our physical stamina, and, while we are so anxious to be lace makers to the world at large, a petition has been this day presented to the House of Commons, against men, either in connection with machinery or otherwise, working 24 hours; there can be no limit to inventions and machines, but I think they should be turned to nobler objects than simple lace making. Until modern times, man was considered of more value than money, but now gold, gilt, and embroidery are the gods of nations.—A. T. J. Martin: *London, March* 12.

IMPROVEMENT IN RAILWAY LAMPS.

Sir,—I take the liberty of writing you a few lines, upon a subject which you were kind enough to take notice of on a previous occasion in your useful Journal—viz., Railway Lamps. I have, for some time past, directed my attention to the construction of the lamps at present in use on all the lines of railway for the roofs of the carriages; they, for the following reasons, are not adapted for the purpose intended:—

1. The construction of the lamp being made thus,—the fountain being so far from the burner, that the oil naturally must rise to its proper level, which is only prevented by the feeder-screw, which is apt to be overhauled—and, at the best, is not air-tight; the oil consequently overflows, and, by the rocking motion of the carriage, when at speed, the oil drowns the light, leaving the passengers in darkness.

Reflector.

2. From the construction of the reflector, the rays of light are thrown off in straight lines—thus, which lights the 2 centre seats, of the apartment are dark; also the flickering of the flame has repeatedly been complained of—being hurtful to the eyes, and prevents a person reading, which is a good companion with silent fellow-passengers. To obviate these difficulties complained of, I have constructed a lamp, which has been tried on this line of railway with complete success—and last night received the entire approbation of John Miller, Esq., C.E., who approved of it. Should you consider a few explanatory remarks regarding it worthy of a corner in your Journal, I will be most happy to forward you a sketch of it, which might be the means of directing the attention of railway managers, and, by their introduction, would confer a great comfort to railway travellers.—Wm. Steele.

Coulair's Station of the Edinburgh and Glasgow Railway.

MR. GREENHOW'S GEOMETRICAL RAILWAY.

Sir,—In reply to the flippant letter of Mr. Greenhow, in last week's Journal, allow me to express my conviction of the importance of his invention, provided his premises be sufficiently established by matter of fact. Where is the carriage that, from right lines or ordinary curves, has ever been overturned by centrifugal force? It appears to me, that the same power which would overturn an ordinary locomotive would, by the resolution of forces, also overturn Mr. Greenhow's; how far his plan might counteract, or prevent, the creation of that power, or diminish the rocking on rails, remains to be tried by experiment on a larger scale. It is possible, as I admitted to Mr. Greenhow, that he may be right in practice, although he is evidently unable clearly to establish his theory, and, perhaps, he may find that suspension on two points of equal height, at each end, with arcs, or spaces, for each point, or centre, to rise alternately, preferable to one—the centre of suspension, and, therefore, of gravity, being transferred to the side of the obstruction. Neither of the diagrams shows that either of the carriages would overturn, but the reverse. I cannot, however, see why 22½° should not be 23°; that a portion of the right lined, or circular force, should be converted into a one-sided centrifugal we can easily imagine. It is a query, however, whether the form of the wheel and the circular rail would have any material effect in counteracting that force, though the one-sided elevation on a temporarily obstructed ordinary rail may have a tendency to force the rim outwards, and thus cause it to rise and run over. Further, I shall content myself with the modest assertion (notwithstanding my want of calibre to "crack small wit nuts," which, by-the-bye, are void of kernel), that the centres of suspension at each end of the carriage may have a greater, or accumulated, centrifugal force, arising, or derived, from that of the carriage—not of their own, as misquoted. As to the string and cannon ball, I have nothing to do with the remarks of others; but must, in conclusion, protest against the association of their sentiments, or arguments, *ad absurdum*, with my opinions, or name.—A. T. J. Martin: *Bury-street, St. James's, March* 11.

EMBANKMENT ACROSS THE SEVERN.

TO THE EDITOR OF THE MINING JOURNAL.

Respected Friend,—Permit me to offer to your readers the following observations on the subject of an embankment across the Severn:—Some years ago I submitted for the consideration of our worthy representative, the Hon. H. Berkeley, the propriety of constructing an embankment across the Severn at or near Aust Passage, of sufficient width to allow a railway and carriageway to be constructed thereon, which I believe would tend greatly to promote the convenience and benefit of the public, and occasion but little or no inconvenience to the navigation. It has lately been proposed to construct, at the same situation, a suspension bridge, at an estimated cost of about 1,100,000*l.* Now, as I imagine an embankment, with all the needful requirements for the navigation, draining, &c., might be effected for a considerable less amount, I cannot but think that it would be decidedly superior to a suspension bridge springing from the top of Aust cliffs. The advantages would, I think, be as follows:—

1. A superior level for a railway and carriage road.
2. Superior stability and firmness.
3. The advantage of a separate spacious carriage road.
4. The advantage of preventing the occasional tidal floods over the low land on the borders of the Severn.
5. By making a floating harbour from thence to Gloucester the dangerous navigation at Aust Passage would be avoided.
6. By making proper arrangements to obviate the inconvenience and evil of land floods, thereby increasing the value of all the low lands adjoining.
7. By the probability of converting large tracts of swampy and marsh land, *now of little value*, into valuable pasture or arable land.

At first sight the project may appear to some wild, and even visionary; but I feel persuaded that, if the subject be calmly considered, it will not seem so preposterous as some, *without thinking*, may be led to imagine. I can easily suppose that some will conceive that to effect such a work would be attended with almost insurmountable difficulties, and enormous outlay; in answer to which I feel no hesitation in stating that there is no engineering difficulty; and as to the cost, I feel equally confident that it would not exceed 1,000,000*l.*

It might be asked, how will you accommodate the navigation, because the making locks in the embankment will be attended with great annual expenditure to keep in repair, and will be dangerous and inconvenient in boisterous weather? In reply I may observe, that at less than one mile up the river Wye there is a neck of land (as though provided for the purpose) about 200 to 300 yards wide, which joins the Beachley Head to the main land. At this point I propose to construct an auxiliary basin and canal, to communicate with the navigable part of the Severn or floating harbour, with proper sea and harbour gates, so that vessels may pass up the Wye and effect an easy entrance into the basin in perfect safety, however boisterous the weather may be in the main channel of the Severn. Of course the water in the harbour must be kept to a proper level, so as to enable the shipping to enter the Berkeley and Gloucester Canal at all times; the passage to which canal will be less [illegible] than at present. Along the embankment, at proper places and of proper dimensions, weirs must be made, to allow the surplus water flowing [illegible] float to pass away, with proper tidal hatches over the same, to prevent the tide entering the float. To remove land floods I propose to cut large drains close to the banks of the float, into which the land flood may enter, with proper sea hatches to allow the water to make its exit into the Severn when the tide permits, and to provide powerful steam or water engines to be used when required for pumping the surplus land water into the float or Severn. Thus, I think it is clear and indisputable, that an embankment would be infinitely superior to a suspension bridge (exposed as the foundations of such bridge would be to the tremendous effects of strong tides and heavy seas, and the upper works to the unbroken fury of tempestuous gales and storms), securing all the advantages I have enumerated, at the same time producing a much larger remuneration for the outlay by an income derived (independent of railway and carriage road tolls) from *reclaimed waste land*, and general improvement of landed property contiguous thereto; and, therefore, should it even exceed the estimated cost of the proposed bridge, it appears obvious that the great convenience and advantage obtained would far more than counterbalance the difference.

Bristol, March 12. Thomas Motley, C.E.

P.S.—Should Mr. Parsey's plan of compressed air for locomotives engines (now exhibiting at Pall Mall East, and fully described in previous Numbers of the *Mining Journal*) be found to answer in *practice*, then power may be obtained at the weirs more than ample to work the projected direct Bristol and Liverpool and South Wales Railways at almost no cost! exclusive of extra power for mills and other works, which might be constructed on the embankment.

GREENHOW'S GEOMETRICAL RAILWAY.

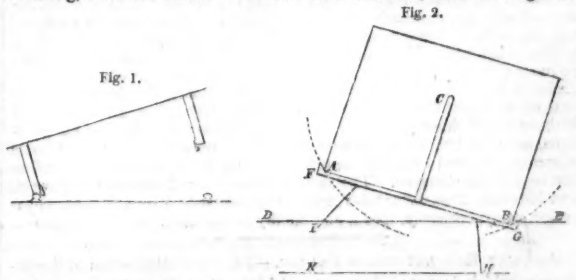
[Conclusion of paper read at the Philosophical Society, Newcastle-upon-Tyne, March 3, by Mr. T. M. Greenhow.]

The great advantages to be obtained by the geometrical railway are comfort, safety, and speed in travelling, and economy of tractive power, original construction, and wear and tear of rails, carriages, and engines. From what has been already said, it will be easy to point out the sources of these several advantages, and, though the three former are intimately connected, I shall treat of them very shortly in succession. Those which relate to *economy* will require a separate and independent notice.—1. The comfort of railway travelling depends upon the smooth and uniform movement of the carriages over the rails; which, in its turn, is in exact proportion to the accuracy with which the one is fitted to the other. If the line is uneven and irregular—if the carriage wheels fit loosely to the rails, which are the guides of their horizontal or onward movement, the motion must necessarily be irregular and oscillating, and a proportional degree of discomfort experienced by the travellers. The effects of these causes are familiar to every one accustomed to railway journeys, and they are explained by a well known law of projectiles—that when any body in motion receives a new impulse, its onward course becomes a compound of the original and the superadded propelling forces—in what proportions it is not now necessary to inquire. This law is easily exemplified in the existing railways. In practice, it is found necessary to compensate for one imperfection by adopting another; and hence it is, that the ill-devised connection between the rail and the tyre of the wheel has rendered it necessary to allow a large margin, by giving the flange on each side a play of about half an inch. In consequence of this play, before the train has been long in motion, the propelling power of the engine brings the ill-fitted flange into contact with the rail, which, according to the law of dynamics, already noticed, giving a different direction to the motion, drives it against the opposite rail, whence a new impulse is received, which is repeated from rail to rail with continually increasing force. In the geometrical railway no such causes of discomfort exist—no *margin* is needed—no lateral motion is permitted; but a smooth and uniform movement is secured.

2. *Safety.*—The same causes, which impair the comfort when increased in intensity, necessarily affect the safety of railway travelling; but another law of projectiles is soon brought into operation, by which their effect is materially increased. The law, to which I refer, is that of repulsion (or the centrifugal force), by which any body in rapid motion has a tendency to fly from the centre. This force is counteracted by that of gravity (attraction, or the centripetal force), by which bodies, whether at rest or in motion, are drawn towards the earth's centre. In railway travelling these opposing forces are constantly acting upon the train, and the former, being unable to raise the entire weight from the line at one time, acts on the sides alternately, raising first one set of wheels and then the other, each in its turn, within certain limits, recovering its position on the line; but when these limits are exceeded, the connection between the train and the line is destroyed, and an overturn takes place, with all its destructive consequences to the limbs and lives of the travellers, and the engines and carriages of the proprietors. This event almost certainly takes place in quick travelling, when the wheels are thrown on to the rails, as in the diagram.

Fig. 2.

Fig. 1.



It is greatly dependent on the forms of the rails and tyres of the wheels, and confirms the truth of the axiom I have laid down—"That a round is the only form which admits of a variety of motions between different objects, when made to move upon each other." In addition to the horizontal movement, the wheels, in this case, make a lateral turn upon the rails, for which their forms are totally unfitted. On the geometrical principle a different result would ensue—the wheels, turning upon the rail as on a fulcrum, would immediately recover their place on the line, even if the displacement supposed were to happen; but this is rendered highly improbable by the mechanical correctness of the whole machine so often noticed, and yet more by the peculiar suspension of the carriages.

The *philosophy* of this mode of suspension has scarcely yet been sufficiently understood, and its effects, in consequence, greatly undervalued, I shall, therefore, endeavour to render it as clear as possible by description. It has often been said, that all mechanical forces may be resolved into the *lever*. Availing myself of this doctrine, I shall attempt to show how ever ready and efficient a *lever* the *pendulum* will prove, to counterbalance the centrifugal force, on whichever side it may be called into operation. When at rest, a pendulum, if unrestrained, will hang perpendicular; if restrained, it will exert a force to regain the perpendicular upon the restraining point, equal to its weight. When in motion it will vibrate from side to side, with a force equal to its weight, added to the momentum, which causes the vibration. In either case the free end constitutes a *lever*, of which the point of suspension is the fulcrum.

In applying these *truisms* to the suspended railway carriage, we shall find that the lever of the pendulum, in addition to its intrinsic weight and acquired momentum, gains no little power from acting, in a most advantageous manner, on the longer limb of a second *lever*—thus forming a double *lever* of much power, the entire force of which is always in readiness to check or counteract the centrifugal force, by which, in the circumstances already described, the wheels of the carriages would be lifted alternately from the opposite rails of the line. The subjoined diagram (Fig. 2) will show that the *lever* A B, of which C is the fulcrum, acts with the entire weight of the pendulum, in its tendency to recover the horizontal line D E, with the addition of any momentum it may have acquired from the motion of the train, and the quicker that motion the greater will become the momentum upon the second *lever* F H, the fulcrum of which is H; and that the aggregate action of this double leverage is to replace the wheel I upon the rail K. I need scarcely point out, that the greater the elevation of the displaced wheel, the greater will be the power of the double lever, because the more the line A B of the pendulum departs *from*, the greater will be its tendency to recover and vibrate *beyond*, the perpendicular. When the carriages are loaded with passengers (one ton perhaps), the principles involved in their construction must be greatly increased in efficiency; and I feel assured, that the more attentively the subject is considered, the greater must become the conviction of their correctness and simple beauty.

The same disturbing causes which affect the comfort and safety of railway travelling, are those which limit the practicable speed. Prevent oscillation, and counteract effectually the centrifugal force, and there seems scarcely a limit to which the speed of railway travelling need be restricted. The geometrical railway supplies the means of accomplishing both these objects, and would render it a matter of indifference, in a working point of view, whether the *gauge* be broad or narrow. The difficulty of preserving the parallelism and equi-distance of the rails has been objected to the geometrical system. This difficulty, it will be remembered, would be infinitely less in a well constructed railway, where *no margin*, or play of flanges, was required. The oscillation is the great cause of the displacement; but the absence of this, and uniform perpendicular bearance on the rails, would nearly preclude all hazard of it. And, after all, what does the argument resolve itself into? The *present principle is bad*, and therefore the *workmanship* must be *bad*; but adopt a *sound principle*, and *good workmanship*, and railway travelling must become infinitely increased in comfort, safety, and practicable speed.

Mr. Greenhow, in conclusion, adverted to the great and important advantages gained by the adaption of the round rails, both as regards economy and safety; and, as there would be scarcely any friction, the saving would be immense. The outlay of construction, in the outset, is also a matter of great consideration, being quite 1000*l.* less per mile than the cost of establishing the present mode; and, under all circumstances, he courted the fullest inquiry into the system.

PROGRESS OF THE ATMOSPHERIC RAILWAY SYSTEM.

It has ever been a leading feature in the history of scientific pursuits, that the introduction of any new system, however beneficial it may be likely to prove, is met by ridicule, apprehension, and ill-feeling—parties are always to be found ready to stifle its embryo efforts to struggle into existence, and whose *interest* often go hand-in-hand with their malicious attempts. The atmospheric system of propulsion on railways has had its share of this spirit of calumny, and, notwithstanding the denunciations which have from its first introduction assailed it, as being totally inadequate as a propelling power, on the score of either economy, speed, or safety, we are happy to find that the more the working of the system is developed, the more it proves its superiority over locomotive power. At a meeting of the Croydon Railway Company, on Tuesday, Mr. Wilkinson (the chairman) acknowledged that they had made a mistake, and had taken into their own hands what ought to have been left to Mr. Samuda, their engineer: hence the crank shafts of the engines broke, and other delays and difficulties occurred, which would, in future, be avoided. A report from Mr. Samuda was read, in which he fully expresses his entire confidence in the system, supported, as it is, by his experience; he observes that "the men each day become better acquainted with their respective duties, and a manifest improvement of them is the result. The facilities of managing the apparatus; regulating the speed of the trains; obtaining the power, exchanging the trains from locomotive to atmospheric traction; working a single atmospheric line, in conjunction with, and in continuation of, a double locomotive line—have now been practically demonstrated to be *in all cases* equal to our anticipations, and in *some* have surpassed the expectations to which we gave expression." The South Devon Railway Company, which line is to be on the atmospheric principle, had their half-yearly meeting at Plymouth, on Tuesday last. It appears that, although no portion of the line is sufficiently forward to be open for traffic, there was every reason to believe the entire works would be completed within the estimates. Mr. Brunel, after accounting for the delay in the works, which he attributed to the continuance of easterly winds during the first winter, by which six months were lost, stated, that "Nothing had occurred to diminish the confidence of those who thought it was a system easily accomplished, and that its mechanical difficulties might be overcome. On that portion which was complete on the Croydon Railway, and on which trains were running, the result was perfectly satisfactory—as showing the power and effect of the system, and the regularity with which it can work; and, so far from the experiments throwing any doubt on the capabilities of the system, it shows most completely that every thing can be carried out. There were disadvantages connected with the working the system on a short line, and a line with five sections would work better than one with only two. A very satisfactory result had been obtained—viz., that, although the engines were placed at only two miles apart, yet they could work the whole distance with the use of only one engine—therefore, when the line consisted of several sections, they might dispense, if necessary, with all except one at each end.

"In France, the commission appointed by the Academy of Science—consisting of Messrs. Arago, Poncelet, Lamé, Piobert, and Reynault—are prosecuting their researches to ascertain the advantages of the atmospheric over the locomotive principle of propulsion. M. Arnollet, in an address to the Minister of Public Works on the subject, observes that the system will reduce fares one-half, and to persist in maintaining the present system would be to oppose the development of public wealth, and prevent a great portion of the French nation from enjoying the benefits of railway extension—that in the mountainous parts of France, rich in mineral wealth—but, where the locomotive system is useless, the atmospheric would afford to that rich portion of the land what the proposed canal from Toulouse to Bayonne could not do, as, from the great number of locks required, it was at last declared impracticable." He proposes, by his system, to raise trains of 30 tons up an ascent far steeper than that of St. Germains, and to descend without the slightest danger; and he would construct a line, on his principle, over the heights which surround Paris, requiring only a 30-horse power engine, and insuring cheap fares and pleasure excursions, as well as carriage of merchandise. The system is gradually developing its powers, and bids fair, at no distant day, entirely to supersede all others from its superior safety, economy, speed, and facility of working.

RAILWAY REGULATIONS IN FRANCE.—The chief disposition of the ordinance which is now being prepared in the Council of State, respecting the police regulations of railways in France, is, that, for the future, no line whatever shall be opened for circulation before it has been received officially by a commission composed of engineers belonging to the Bridges and Roads Departments (Ponts et Chaussées). The object of this excellent regulation is for the purpose of preventing accidents that too frequently occur on railways, either from a defect of the line, embankments, viaducts, or machinery; and the duty of the engineers who have been appointed by Government, is, to thoroughly investigate not only the state of the new lines, but also the old ones, now in full operation. Were a similar system established in this country, by the appointment of inspecting engineers of experience on the different lines, many accidents would be prevented, and the extra expense would be but trifling, as there are many clever officers of the Royal Engineers, and Sappers and Miners, on half-pay, who could most efficiently undertake the appointment on being put upon an extra full-pay, for their services towards which the directors of all the companies, from one end of the United Kingdom to the other, would have no objection to contribute for the safety of the public.

LONDON ASSURANCE CORPORATION.—Among the numerous undertakings and projects of the present day, for the profitable investment of capital, there is none of a more secure character—and none, perhaps, which administers in a greater degree to the moral, as well as physical welfare, and the general happiness, of mankind—than those institutions for the assurance of human life, with which England now happily abounds. These establishments have, within the past 30 years, increased in a most extraordinary degree, and the growing appreciation of the population for institutions by which they can secure assistance for their families at death, have enabled them to form the most liberal scale of premiums, and effect assurance on systems so highly favourable to those who may be assured, that it has been thought impossible to introduce any features into the constitution of assurance bodies, but what might be found in one or other of the existing companies. The London Assurance Corporation, established in 1720, has however, we find from a prospectus now before us, revised their old system; and, by the addition of some of the most advantageous points in new ones, formed a joint system of assurance, apparently perfect in all its parts, and offering to every class of society the utmost benefit which assurance companies can confer. In 1831, this company commenced a new series of assurances, upon the principle of allowing the assured to participate in the profits, by an annual abatement of premium to those who had been assured the full term of five years, and which will be worked entirely distinct from the present enlarged system—so that one will in no way interfere with the other; and persons desirous of assuring their lives, will have the option of selecting whichever they may consider best adapted to their purpose. The new series of 1846 consists of 10 tables of premiums, under the following various heads, viz.:—1. An equal annual premium through life; 2. A single payment,—or two, three, or more equal annual payments, until they cease, and the policy to remain in force; 3. Increasing annual premiums; 4. Decreasing annual premium, until it remains at a small fixed annual sum; 5. Decreasing annual premiums, until they cease—policy remaining in force; 6. Increasing assurances, policy increasing in value therewith; 7. Deferred assurances, at an equal annual premium,—but policy only payable by the assured surviving three, five, or seven years; 8. Assurances contingent on one life surviving another; 9. On joint lives—policy payable on decease of first two lives; and 10. On longest of two lives, payable on death of survivor. Such is the new arrangement made by this corporation, and we think the advantages of life assurance are here offered under whatever circumstances it may be required. The gross profits are to be calculated every five years, and apportioned—one-third to the corporation, and two-thirds to the assured, either as a bonus to the policy, its value in cash, applied to the reduction of premium, if 50*l.* new policy will be granted, or any special arrangemen will be made convenient to parties. Out of their one-third share of the profits the corporation pay all the charges incurred for management. The tables have been scrupulously calculated; and while care has been taken, not to endanger the security insured by a large subscribed capital, the full blessings of the principles of life assurance are now open to all who may wish to avail themselves of them.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

TUESDAY.....Botallack Mine Account—on the mine.
Namur and Liege Railway—London Tavern, at One.
WEDNESDAY..South-Eastern Railway—London Station, at One.
London Assurance Company—Office, at One.
THURSDAY....South-Eastern and Continental Steam-Packet Company—office, at One.
Patent Fuel Company—office, at One.
FRIDAY.....Devon and Courtney Consols Mining Company—Plymouth, at Eleven.

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

NEW BRUNSWICK AND NOVA SCOTIA LAND COMPANY.

The annual meeting of this company was held at the office of the company in Copthall-court, City, on Thursday, the 12th inst.

JOHN MOXON, Esq., in the chair.

Mr. AGGAS read the report of the directors, as follows:—

REPORT.

On reference to the London cash account for 1845, it will be observed that the expectation entertained at the last annual meeting has been realised, and that the surplus sum expended has again diminished—viz., from 900*l.* 19s. 8d. in 1844; and from the average charge of 1625*l.*, which ruled from 1839 to 1843, down to 325*l.* 1s. 6d., as shewn by the account before the present meeting. The cash account received from Stanley, shows the ordinary expenditure, 1168*l.* 6s. 2d. currency, against Capt. Hayne's, original estimate of 1185*l.* 12s.

On the other hand, the receipt is below the estimate, and there is on the whole a small balance against the company, owing to the non-receipt in proper time of some moneys due on timber, &c., which will probably be brought to account in the first quarter of 1846.

Should the Stanley estimates for 1846 be realised, the receipt there may be taken at 2114*l.* currency, against an expenditure of about 1100*l.* sterling, or 1340*l.* currency. Owing to the visit of the chief commissioner to England, two quarters pay—namely, December, 1845, and March 1846—have been charged on the London cash account, for the present year. As the receipts at Stanley were short, the directors have authorised drafts from thence, amounting to 250*l.* sterling, which they trust will be covered by increased receipts for land and settlers' account. The assets and liabilities for 1846 may, therefore, be estimated as follows—viz.:

Cash balance at Messrs. Williams, Deacon, and Co., 31st Dec., 1845		£430	7 9
Receipt for land and settlers' account		550	0 0
Calls in arrear		475	0 0
Total estimated receipt, 1846		£1455	7 9

PAYMENTS.

London establishment	£580	0	0	
Ditto, incidental expenses	200	0	0	
Bills drawn from Stanley	250	0	0	
Two quarters pay of chief commissioner	200	0	0	—1230 0 0
Estimated balance, 31st Dec., 1846		£ 225	7 9	

On comparison of the crops of 154 settlers for 1845, with the returns of the previous year, it appears that they have declined to about the quantities reported for 1843.

The stock has increased, as will be observed by the following particulars—viz.:

	1845.	1844.
Cattle	409	330
Horses	64	65
Sheep	360	297
Pigs	321	245

The number of acres stumped and ploughed, has also increased from 108 acres to 252. The new lands brought into cultivation in 1845 are 431 acres, against 462 in the previous year, and the further quantity prepared for 1846 is 452, against 518 the previous year.

The decreased returns of agricultural produce are attributed to the potato disease—to the wet and unfavourable season, and lastly to the revival of lumbering, which has led, as on former occasions, to a partial neglect, in many cases, of the more solid and steady business of cultivation. The sales of land in 1845 are less than in 1844—viz., 1928 acres to 15 purchasers, and nine town lots; but, the sale prices of many of the lots, shew the effect which the growth of Stanley has in enhancing the value of land in the immediate vicinity. The emigration for 1845 considerably exceeded that of the previous year, and it appears that a larger proportion than usual remained in the province, being attracted by the scarcity of labour, and consequent higher rate of wages. The directors have pleasure in reporting that a grant was made by the House of Assembly, in the session of 1845 of 200*l.*, besides smaller sums for bye-roads, amounting to about 25*l.*, in aid of the company's expenditure, which has enabled them to continue the improvement of the line of road leading from Stanley to Campbell The sum authorised for roads by the directors, has been expended between Stanley and Taymouth, with a view to the establishment of a regular stage conveyance for passengers, letters &c., to and from Fredericton.

Considering the total outlay made by this company since 1834, in purchase and improvements, amounting together to the sum of 129,315*l.* 3s. 1d., the directors cannot but conclude, that the grant first made by the Legislature in 1845, will be followed by others of more considerable amount. Since the chief commissioner's arrival in October, the directors have, agreeably to the suggestions stated at the last annual meeting, authorised a somewhat increased expenditure in advertisements, and notices of various kinds, and in visits to some parts of the country, with a view to a more extended emigration to Stanley of persons possessing substance; and in consequence of numerous applications received, it is expected that several parties will go out early this season, in a vessel to be engaged by the company, to sail at a fixed date. Nothing further has recently transpired as to the Government plan, for carrying out the line of military road from Halifax through the centre of New Brunswick, and so to Quebec, by way of the Upper Falls of the St. John. For this plan, however, another appears likely to be substituted, supported by the Legislatures of the provinces of Canada, New Brunswick, and Nova Scotia, and with great unanimity also by numerous influential individuals connected with all the provinces—viz., a plan for making a railway from Halifax to Quebec, by much the same route as that designed for the military road. As the construction of a railway must tend to the speedier settlement of the country, by diverting the conveyance of passengers, goods, and correspondence, from an American to a British line, the directors trust that the delay in making the military road, may have been owing to the strong reasoning produced in favour of the railway. Nothing can shew the common agreement of the whole colonial connection of British America, more plainly, than the circumstance, that the directors presented a memorial to her Majesty's Government in April 1845 (not being cognisant at the time of any movement in the provinces), showing the expediency of applying to a railway, the expenditure which the Government contemplated voting for the making of a military road. The directors beg leave further to report that the following directors, and auditor go out of office this day by rotation—viz., Philip Gowan, George Nicholls, Thomas Newham, Newman Smith, Esq., directors; and John Norbury Esq., auditor.

The above being re-eligible offer themselves accordingly. Two vacancies in the office of directors have also occurred by the lamented decease of Thomas Butts, and Ambrose Humphreys, Esqrs. Two stockholders properly qualified, have given due notice of their intention to offer themselves as candidates for filling the vacant offices.

The CHAIRMAN alluded to the expenditure over the income, which had been reduced from 1500*l.* or 1600*l.* for the last seven or eight years, to 900*l.* in 1844, down to no more than 325*l.* 1s. 6d. for the year 1845. He touched on other points of the report, particularly the projected railway from Halifax to Quebec, which could not fail to be of the greatest advantage to all the British provinces in North America, and, particularly, to New Brunswick and Nova Scotia, and concluded by calling on the secretary to read the balance sheet.

From this document it appeared, that the receipts at home were 1054*l.* 13s. 10d., and the payments, 1176*l.* 18s. 10d.; and, in the colony, the receipts were 1395*l.* 4s. 5d., and the payments, 1552*l.* 8s.

A PROPRIETOR asked how many persons attended the church in the town of Stanley?—Capt. HAYNE, the company's chief commissioner, who was present, said about 50 or 60, who were mostly of the Established Church.

Mr. POUNCY thought they ought to circulate the accounts previously to the meeting.—The CHAIRMAN said, that as their accounts were in so small a compass, it was not thought requisite; but as they grew more extensive it might be expedient to circulate them a fortnight before the meeting. (Hear.)

A DIRECTOR said, any gentleman could see the accounts after they were audited, and previously to the meeting, by calling at the office.

The CHAIRMAN then moved, and Mr. STUART seconded, the adoption of the report and balance sheet, which was agreed to unanimously.

Philip Gowan, Esq., George Nicholls, Esq., Thomas Newnham, Esq., and Newman Smith, Esq., were re-elected directors; and John Norbury, Esq., was re-elected an auditor.

Thomas Butts, Esq., was elected a director, in place of his father, deceased, and Richard Blanshard, Esq., in place of Ambrose Humphreys, Esq., deceased.

The CHAIRMAN drew attention to the meeting of the Society for the Propagation of the Gospel in Foreign Parts, on the 17th instant, at the Mansion-house, when the subject of religious instruction for the colonies would be brought before the meeting.

Several proprietors spoke on this subject, more particularly as to not committing this company to any further payments, till the demands of the settlers rendered it imperative.

The CHAIRMAN said that was not their object, but any proprietor could appear in his individual capacity at the meeting, and act as he thought expedient.

A PROPRIETOR asked, what was allowed to their clergyman at Stanley?

The CHAIRMAN said, the Society for the Propagation of the Gospel allowed him 100*l.*, and they paid an additional sum of 52*l.* per annum.

Mr. HANKEY maintained that equal facility should be given for the exercise of the religion of all the denominations in the colony.

Capt. HAYNE said, that the only churches at present established at Stanley were those of the Church of England and Roman Catholic, but no Presbyterians yet, although an application was in progress.

The CHAIRMAN observed, that the Company had given a piece of ground for a Roman Catholic cemetery, and also for a Catholic chapel, which showed the impartial feeling which existed. (Hear, hear.) In respect to the Established Church, they had given 150 acres of glebe land, in addition to the land for the church itself,—but the reasons in this case were, that the society contributed largely to the maintenance of the minister, and gave 100*l.* towards fitting up the church.

After a few other observations in respect to the subject of sending a deputation to the approaching meeting at the Mansion House, the conversation dropped without any resolution being come to.

The CHAIRMAN informed the meeting that Capt. Hayne would return to New Brunswick about the end of April, and that their emigrant ship would sail about the 15th—when

Mr. HANKEY suggested, that previously to that, the directors should convene a general meeting to take leave of Capt. Hayne, and confer with him on the subject of emigration and other matters. (Hear, hear.)

The CHAIRMAN assented, and said the proprietors should have due notice of the meeting.

Mr. HANKEY then moved, and Mr. BLANSHARD seconded, a vote of thanks to the chairman and directors, and to the chairman particularly, which was agreed to unanimously; when the meeting separated.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

Society.	*Address.*	*Day.*	*Hour.*
Westminster Medical	32, Sackville-street	Saturday	8 P.M.
Statistical	12, St. James's-square	Monday	3 P.M.
Chemical	Society of Arts, Adelphi	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Linnæan	Soho-square	Tuesday	8 P.M.
Horticultural	21, Regent-street	Tuesday	3 P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
Syro-Egyptian	71, Mortimer-st. Cav.-sq.	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
London Institution	Finsbury-circus	Wednesday	7 P.M.
Microscopical	21, Regent-street	Wednesday	8 P.M.
Royal	Somerset-house	Thursday	8½ P.M.
Antiquaries	Somerset-house	Thursday	8 P.M.
Royal Institution	Albemarle-street	Friday	8 P.M.
Philological	12, St. James-square	Saturday	8 P.M.
Asiatic	14, Grafton-street	Saturday	2 P.M.

GEOLOGICAL SOCIETY.

FEB. 23.—The President (Mr. HORNER) in the chair.

G. E. H. Vernon, Esq., and J. Jeffreys, Esq., were elected fellows.

A memoir was read, "On the Tertiary Formations of the Isle of Wight," by J. Prestwich, jun., Esq.—The superposition of the middle and upper beds of the eocene period is nowhere so well seen as in the coast sections of Hampshire and the Isle of Wight, and the subdivisions here marked may serve as the best types for working out the geology of the London district. The author, after stating the results obtained by former observers, exhibited in succession the development of the organic remains, conjointly with the changes of lithological character and dip, with reference chiefly to the period of the disturbances by which the beds have been affected. There was, probably, a slow and quiet deepening of the sea bottom, commencing at least as early as the deposit of the Bognor beds, continuing throughout the overlying marine sands and clays, and then gradually ceasing, or, at least, diminishing, as we approach the fluvio-marine strata; so that the estuary then became filled up, and the sea occasionally barred out. With regard to the powerful disturbance which has produced the vertical strata of Alum Bay and Whitecliff Bay, the author states that no unconformability of superposition has thence resulted—all the beds having been effected in the same ratio, though not to the same extent. From the position of the beds at present, it appears that the elevation must have resulted from a disturbance acting in a north and south direction—that it took place subsequently to the deposit of the whole Isle of Wight tertiary series, but that there is no evidence to show its exact age. It must have been of considerable violence and short duration, and totally unlike those which were going on throughout the whole of the period of deposit of the eocene beds. The author considers it doubtful whether the usually received grouping of the Isle of Wight beds, as contemporaneous with those of the foreign tertiaries, can now be maintained; and states that although the evidence is conflicting, it is probable that they were older than has been supposed. He is inclined to consider the fresh-water and estuary strata of the Isle of Wight as synchronous, or nearly so, with the upper calcaire grossier, although he is aware that there is no identity of fossils. The beds in the Paris basin, containing fresh-water fossils, are far richer in species than those in the English tertiaries; and of the very small number of common species, only half are characteristic, and several range down into the lower beds; while out of 30 known Isle of Wight species, as many as 20 are common to the calcaire grossier, and some of these are characteristic. It also appears that several of the most abundant species in the upper beds of Whitecliff Bay are met with lower down in the series, and that no positive line of separation can be drawn there between the London clay and the overlying beds, these passing palæontologically into one another. The Bracklesham beds, which apparently correspond with the central or London clay strata of Whitecliff Bay, exhibit a group of fossils approaching far more closely to those of the calcaire grossier and glauconie grossiere than to those of the upper beds of the calcaire grossier. They might even be placed lower in the scale than this, from the result of an examination of about 100 species with the French analogues.—A notice was read, accompanying a specimen of a calcareous band in the plastic clay from the bed of the Thames, by G. Rennie, Esq. This fossiliferous band of calcareous sand occurs in the river in Limehouse Reach. It is of no great thickness, but is mischievous, as forming a shoal dangerous to steam-vessels at low water.

INSTITUTION OF CIVIL ENGINEERS.

MARCH 10.—The President (Sir JOHN RENNIE), in the chair.

The paper of the evening was an "Account of the Drops used for the Shipment of Coals at Middlesborough on Tees, with a Description of the Town and Port of Middlesborough," by George Turnbull, M. Inst. C. E. The communication first gave an account of the town of Middlesborough on Tees; and then described the docks, and the coal drops used there. The rapid rise of the town into commercial importance was treated of and accounted for, chiefly by the fact of a branch having been constructed from the Stockton and Darlington Railway to Middlesborough, which, as a port for shipping, possessed many advantages over Stockton. As an example of this increased importance, it was stated, that the quantity of coals sent down the Stockton and Darlington Railway, and shipped at Stockton and Middlesborough in 1825-26 was 7926 tons; and in 1840-41, it had increased to the comparatively immense amount of 498,092 tons. The handsome manner in which the town was laid out and built, and its active manufactures, were also noticed. This commercial activity necessarily caused the want of a dock to be felt, and the present works were accordingly executed. The approach to the dock was stated to be by a channel of more than a quarter of a mile in length, which was kept open by sluicing; the entrance lock, built of stone, was 132 feet long by 30 feet wide, and the area of the dock itself was about 9 acres.

The branch railway diverges from the Stockton and Darlington Line, and terminates in 10 double lines, leading to the 10 coal drops. The manner of working the drops was thus described:—the loaded waggon is run on to a cradle, or stage, which is arrested in a position, immediately over the hatchway of the vessel to be loaded; it is then let down perpendicularly by means of counterbalance weights, and, when it has nearly reached the deck of the vessel, the contents are discharged into the hold; the counterbalance weights then preponderates, and the empty waggon is raised to the level of the rails. At the ordinary rate of working, about 30 waggons can be discharged an hour by each drop. In a statement, annexed to the paper, it is mentioned that, in the year ending July 1, 1845, 505,486 tons of coal were shipped by means of the 10 drops here described. The cost of the drops was 7800*l.*; the total outlay for the whole works amounted to 122,000*l.* These works were designed by Mr. W. Cubitt, V.P. Inst. C.E.: Mr. G. Turnbull being the acting engineer.—Mr. Siemen's chronometric governor was exhibited, and, after being explained to the meeting, its merits, as a regulator of machinery, was testified to by several gentlemen who had used it for corn and other mills, and it was acknowledged to be very superior to the ordinary pendulum governor of Mr. Watt.

SOCIETY OF ARTS.

March 11.—THOMAS WINKWORTH, Esq., in the chair.

The first communication was by Mr. Waterhouse of Chesterfield, on his machine for the manufacture of Mechlin lace. It appears from the description of the machine, and the specimens of the lace exhibited, to be one of extraordinary capabilities: the number of warp threads in the width alone is 4700, and a corresponding number of bobbins, or weft threads, are required, making a total of 9400 threads, which represent the same number of bobbins, and are all kept in motion at the same time. In making pillow lace, it requires as many hands as there are bobbins—for on the cushion one hand must wait for the other, in order to obtain the requisite crossings of the threads. Some idea may be, therefore, formed of the intricacy of the machinery, and of the ingenuity displaced in its arrangement; as by it every motion given to the threads by the hand of the workmen, is exactly given by the machinery, but with much greater rapidity and precision. The process of the manufacture was described at considerable length, and illustrated by diagrams and parts of the machinery itself. There were also various specimens of the lace exhibited—one of which was 26 yards long, and 4 yards wide, and had four patterns woven upon it. The number of motions or throws that would be required to produce a similar piece of lace by hand would amount to not less than 2,111,616,000. The lace when made is, in no respect, inferior to the foreign lace, but was pronounced by several gentlemen connected with the manufactures, and who took part in the discussion which ensued, to possess all the properties of the foreign manufacture.

The next communication was by Dr. Paltrineri—on a new steam-engine magnetic engine, and other machines, in which the moving power is applied simultaneously, by action and reaction, to the work to be performed—being illustrations of a system for obtaining all motive powers and maximum of effect. Dr. Paltrineri conceives that the maximum of effect is to be obtained by applying simultaneously the action and reaction of every motive power with equal velocities to the production of the useful effect. He showed a very beautiful double turbine, in which the water, steam, or other moving fluid, is applied by means of two concentric wheels, through which the fluid passes successively—and by this means, he showed that a residual effect, which is lost in the ordinary single wheel, would be converted to use by the double. He showed the same results in the case of his new magnetic engine, and he illustrated the fact by a machine of great accuracy, in which the constant force of a spring is applied to raise a weight—first, by having one end released, and the other fixed; and next, by releasing both ends simultaneously, and in which latter case he showed that the maximum of effect is utilised. The whole of the machines were simple in their construction, and beautifully executed, and proved by experiment the accuracy of the author's deductions.

ON THE CHEMISTRY OF THE STEAM-ENGINE.

BY T. CRADDOCK, ESQ., BIRMINGHAM.

LECTURE I.—On the great importance of possessing the mind with a clear perception of first principles, both in relation to its own facility in acquiring a correct individuality of opinion on every subject that can engage the human mind, and in enabling it to choose the good, and refuse the evil, presented by other men for its reception—On the combustion of coal.

LECTURE II.—On the question of smoke prevention—On the effects of high rates of combustion on the metal of the boiler—On the advantages of thin metal, with a large quantity of surface for the radiant and communicative heat to act upon—On boilers of the common construction, their advantages and disadvantages—On tubular boilers, their advantages and disadvantages.

LECTURE III.—On apportioning the generation of steam to the wants of the engine—On the priming of boilers, especially tubular boilers—On boiler explosions—On the available motive-power of a given weight of steam commencing its action at various pressures—On atmospheric air as a motive-power—On the best mode of using steam expansively.

LECTURE IV.—On the most effective mode of transmitting heat from a hotter to a colder body—On surface and injection condensation with water—On surface condensation with air alone—On the advantages which, in practice, arise from pure water in the boiler—On the direction which the foregoing principles evidently lead us to anticipate—a much more extended application of the steam-engine.

LECTURE V.—On the economy which experience proves is thereby attainable—On their application to steam-vessels, to locomotives, and to stationary-engines, with some farther remarks on the extended range of utility, which the foregoing facts will make apparent.

LECTURE III.

In my second lecture I stated that one of the objections brought against tubular boilers was that in them the steam was subject to greater irregularities of pressure than in the common boiler; the reason of this we saw to be, their containing a much less weight of water, which, in the steam boiler, has the effect of reserving heat when in excess, and thereby counteracts irregularities of the fire, or other disturbing causes, in the production of steam for the use of the engine; this we also saw arose from the temperature of the steam at all times corresponding with its pressure, and that the water from which it is generated partakes of the same temperature. Hence, we see, that on the pressure of the steam being reduced, the great weight of water contained in the boiler must necessarily sink in its sensible heat, which it can only do, under such circumstances, by some part of it passing from a state of water into that of steam. It is, therefore, obvious, that the controlling power which the common boiler possesses in producing uniformity of pressure, depends entirely upon the great weight of water it contains, and which acts as a reserve for the superabundance of heat produced at one time to supply the deficiencies of another. To give something like an adequate idea of the effect any given weight of water would have in thus regulating the pressure of the steam, we will suppose 160 cubic feet of water as that in the boiler, and that the steam should vary from 60 to 69lbs. per square inch; the difference of temperature, on this variation of pressure, would be equal to 9 degrees, which, upon this reduction of temperature in the 160 cubic feet of water, 1170 cubic feet of steam would be generated at 60 lbs. pressure; or, if we take the pressure as varying from 18 to 15 lbs. on the inch, which variation will give the same number of degrees temperature in the water, from the higher to the lower pressure, and will, at 15 lbs. on the inch, give 3338 cubic feet of steam: the pressure of the air is included in the foregoing remarks. It occurs to me here that I may simply illustrate, in the same way, the cause of the expansion given to the water in cases of explosion; as we see above the part the 9 degrees of sensible heat contained in the 160 cubic feet of water plays on its passing through only 9 degrees of temperature; if we then suppose steam at 40 lbs. on the inch, which, on the bursting of the boiler, is instantly reduced to 20 lbs. per inch, including the pressure of the air, we shall find here that we have 40 degrees difference of temperature, and that as much water would instantly flash into steam as would produce upwards of 10,240 cubic feet: this explains the diffusive nature the water on such occasions assumes. Not being able to possess ourselves of this desirable quality in conjunction with tubular boilers, the question naturally presents itself, can we not achieve the same object by other means? And, as we have seen that, in the former case, it is the secondary element, water, by which the object is effected, we go now at once to the primary or original source of the heat itself. And here we find that we can introduce a controlling agency, which partakes of a more accurate and perfect adaptability of producing uniformity; it is by mingling at pleasure the quantity of the two substances from which the heat is produced, and at the same time rendering it self-acting by the pressure of the steam in the boiler. This I effect by the instrument before you, the principle of which is, the action of two elastic bodies, the steam in the boiler, and atmospheric air in the air vessel, the one acting on the one side of a small piston, the other reacting on the opposite side of the same. Before I proceed farther, it is necessary to observe, that neither the steam nor the atmospheric air act directly upon the piston, but through the intervention of cold water. This enables me to use a leather bucket, with all the advantages in point of tightness and smallness of friction. It will also be remarked, that in this arrangement, the difference of pressure on either side the piston is not greater than that required to overcome its friction; whilst the motion is conveyed to the damper through a small rod of a quarter of an inch diameter, around which only, is it requisite to make a packing joint to resist the pressure in the boiler. It will, therefore, be seen that the deranging causes, which I, in common with others, have found to attend most kinds of regulating dampers, are here all but annihilated. The deranging causes alluded to are variations of temperature in the fluids and apparatus by which the object is sought to be attained, together with the friction arising from comparatively large stuffing boxes and glands, through which the plunger, when made of an uniform size, must pass; it is also well known here, that the friction induced by such stuffing boxes does vary with the temperature. Hence, uniform and delicate action, the things here most desirable, are by all these deranging causes much impaired. It may appear somewhat strange at first sight, that I am able to communicate motion by cold water to and fro, between the apparatus and the boiler; whilst, at the same time, this cold water must communicate with that in the boiler; which, when the temperature is at 115 lbs. per square inch, would have a temperature of 340 degrees. But this is one of those simple things which a knowledge of abstract principles instantly suggests—viz., that fluids do not convey heat scarce perceptibly downwards; therefore, by connecting the apparatus by a small tube to the bottom of the boiler, and providing the small quantity of cold water requisite to its action, we have thence the advantages of a most intimate and sensible connection, with that of a cold and uniform temperature. It only remains for me here to add the mode by which it is put in action. We have here a small syringe, or cylinder, having a leather bucket in it, connected on one side with the boiler, and on the other with the air vessel—the steam gauge being connected with the boiler, the engineer has only to open the tap which communicates directly from the boiler to the air vessel, thereby allowing the water to flow freely from the former into the bottom of the latter, until it has compressed the air to the pressure he desires the steam should be kept at: if he now close this tap, no communication between it and the boiler exists, but through the rising and falling of the piston, which, being connected with the damper, will regulate the admission of air to the furnace in greater quantity as the pressure of the steam lowers in the boiler. To such a degree of accuracy is this accomplished, so long as there is fuel upon the grate, as not to permit the steam to vary in pressure 5 lbs. in 100 the day round; and this, too, in a tubular boiler, not containing more than 40 gallons of water. Connect with this a self-acting feeding apparatus, with the returning the same water continually to and fro, from boiler to engine, and thus ere long, will be verified, in truth and soberness, one of the unfair assertions used against me at my outset—viz., that I was a perpetual motion dreamer. I say that herein is contained one of the most rational and approximate approaches to perpetual motion, on a large and useful scale, hitherto produced.

It hath been objected in this arrangement that part of the air in the air vessel would be absorbed by the water at high pressure. This assertion, though true in the mere abstract sense, falls powerless when directed against this combination; for, as I have shown that the engineer has only to open a tap communicating directly with the boiler, and thereby can at any time increase his pressure and remove this small objection (as, should he find that the steam was not by a pound or two as high in pressure as he desired it, he has only to let more water into the air vessel, thereby compressing the air to suit the pressure he desires for his purpose—so that, when once the water has imbibed its saturating quantity of air, it will, as I am sure the objector must grant me, continue inoperative for a further diminution of the air. But another great advantage which is simply attained in this instrument is, that though the working pressure may be at 100 lbs. or even 500 lbs. per square inch, if desired, yet does the engineer wish to leave his engine, or for any other purpose desire to keep the steam at but a few pounds above the atmospheric pressure, he has only to let the water out of the air vessel, when the air will expand to any limit down to the external atmosphere; it is then as effective in keeping steam at this point as it was at 100 lbs. In this way we can in a minute of time adapt its regulating efficiency to any pressure we may desire. Two good results arise from an efficient instrument, such as we have been speaking of, besides that of keeping the steam uniform, or rather is the result of this uniformity—viz., the preventing the loss of fuel which takes place in the useless escape of steam at the safety valves, together with the danger of an over-production of steam to the injury of the boiler.

Another objection we noticed made to tubular boilers was, that owing to the confined space in which ebullition takes place, the steam carries portions of water along with it to the engine; this is technically called priming. Various are the modes which have been suggested for its prevention. I will first mention those which appear to me to be more or less calculated to produce the desired effect; and then state that which I have practically found to answer every purpose; amongst those which are at present recurring to my mind is one for preventing the efflux of water with the steam, which long tubes of 8 or 10 feet are more subject to than shorter ones, owing to their greater extent of surface, with the expansion the bubbles of steam acquire as they ascend from the bottom upwards, together with their accumulating quantity, carrying a considerable amount of water out of the tube before them. No doubt, if there was a central tube running down the one whose surface is exposed to the fire, that a downward current of water would be effected in the central tube, whilst the bubbles of steam would escape up the annular space with less resistance; but to make this mode efficient in long tubes there should be openings into the central tube at short distances, say three or four inches apart; the water would thence be able to get into the quiescent or downward passage previous to the accumulation of any large quantity of steam. Another mode that has been proposed is that of spreading the water, together with the steam, over an expanded or sheet surface. This, no doubt, has somewhat the effect of producing a more ready disengagement of the steam from the water. The only other mode I shall notice, except the one I use, is that of passing the steam through minute holes or wire gauze. This has a tendency to separate the water from the steam. The mode I prefer is that arising from the gravity of bodies; hence I elevate the steam-chest above the generative vessel or boiler. By this means I produce a twofold effect—that of obtaining a counteracting force, whereby to send the water, which is carried over into the steam chest, back again to the bottom of the generator or tubular boiler. This, as I have said before, is effected by the simple communication of a separate pipe from the bottom of the steam chest to the bottom of the boiler. As we find in practice that the pressure is somewhat greater in the generator or tubular boiler, than it is in the steam-chest, this is more or less so according to the rapidity with which the steam is generated; which thereby carries more or less of the water with it through the steam-pipe that connects the boiler with the steam-chest; it is also somewhat dependant upon the size of the steam-pipe. If we suppose, for instance, that this difference is, at its greatest, equal to two pounds per square inch, then must we, to keep our steam-chest at all times free from water, elevate it from four to five feet above the tubular boiler. This being the case, we see that a few pounds of water filling the tube or pipe, are equal to counteract the greater resistance in the boiler; we also see, therefore, that if we take a steam-pipe of six feet long, and on delivering the steam, with the priming water, into it, in such direction as to throw it down to the bottom, the water will, as described, pass back into the tubular boiler; the steam rising to the top of the steam-chest is from thence conveyed in a dry state for the use of the engine. To meet anticipated objections, I would observe, I am here conceiving of steam nearly six times the density or pressure of that of the atmosphere; hence, we have as great a weight of steam in one-sixth its space as we should have were it generated at merely an atmospheric pressure. Here we see again that the closer we approach to the soundest abstract principles, the more subservient do they become for practicable purposes; as here the small cylindrical vessel is capable of containing as much ready-made motive power as would a vessel of six times its capacity, at the lower pressure, whilst, at the same time, in a given weight of this steam, is contained a much greater amount of motive power than were it used commencing at the lower pressure. If we turn for a moment to survey the question of danger, here, also, we shall find that it too is not increased in proportion to the pressure of the steam, because the surface on which it acts is much less than with steam at the lower pressure; we, therefore, find that though, on the low pressure system, we diminish the pressure, we increase the surface on which it acts, and thereby the strain or tendency to explosion. I would remark, that the elevating the steam chest in stationary and marine engines would be attended with no inconvenience, whilst, for railway purposes, a more convenient mode may, perhaps, be adopted; for, as the priming in tubular boilers, as in others, depends in a great measure on the rapidity of the evaporation, so that, if we were to diminish to a very considerable extent the evaporation of any one tube, by increasing their number for the absorption of a given quantity of heat in a given time, it is clear we should at length attain a point at which little priming would ensue; and, as what I have called the natural draught upon the railway, would certainly not give an intense heat, the priming therefore would not be so considerable. But it does appear to me, after all, that the great advantages I have found, by elevating the steam-chest, would be desirable on the railway; and as we pack so much steam in so little room, the weight of which is an item not worth our notice—whilst the steam-chest itself would not be more than 25 tons or 30 tons, I would suggest, could it not be placed in the chimney, whereby condensation would be prevented, and at the same time the elevation would be obtained, the heated air or gases passing around it. The only objection to this would be, that the chimney would require to be larger than at present. I do not set much stress on this arrangement, but merely mention it as one which has occurred to my mind. We have already explained that boiler explosion become more destructive in proportion to the quantity of explosive matter, and to the diffusive and instantaneous manner in which it is liable to be set at liberty. That these accidents seldom take place under working pressure, I think may safely be inferred; but, from some unforeseen cause, a very great increase of the pressure of the steam takes place. It is an hypothesis with some, that these accidents are produced by the accumulation of hydrogen gas, which, on being mixed with a due quantity of atmospheric air, the oxygen of which they assume, combines with the hydrogen, and thereby produces the explosion. This, as far as I know, has got little (if any) practical evidence in its favour; but moreover, without seeking for causes so remote, and so unsubstantiated by fact or experience, we have, I think, very good grounds for believing that, in most cases at least, boiler explosions are produced by a great and sudden accumulation of steam, owing to some part of the metal of the boiler becoming unduly heated from a lowness of water. This being the case, on the steam being drawn off to the engine, rapid ebullition ensues, which carries the water as it were in a spray over the unduly heated metal, there to be very rapidly converted into steam. The majority of explosions will, I think, also be found to have taken place on the starting of the engine. An article, which appeared in the *Manchester Guardian*, on boiler explosions—and with the views given by the writer of which I must freely confess I was disposed at first to agree—but, on considering the matter more closely, I was induced to investigate what quantity of water a given weight of iron, at a temperature approaching a dark red, would convert into steam; and on a subsequent occasion I experimented upon the time required for the conversion of a given weight of steam from such a source of heat as the hot plates of the boiler. The substance of which is as follows:—A cylindrical boiler of 4 feet diameter, 20 feet long, with an internal flue of two feet diameter: in calculating the internal capacity of the boiler, or quantity of steam and water it would contain, I omitted to make any deductions on account of the flue, and have taken it as capable of containing 320 cubic feet of water and steam, and as, in the case of boiler explosions in general, there is a deficiency of water, I have, therefore, in this case taken the boiler as being a quarter full, which leaves steam room equal to 240 cubic feet. The next question is, the extent of the flue, or other plates, which may have become unduly heated above the level of the water. This, in the case alluded to, as we have said, was a boiler with an internal flue of 2 feet diameter and 20 feet long; I supposed it to have been heated to a dark red for 15 feet in length, and extending round half its diameter; we have then 45 square feet, which, on supposing the plates were half an inch thick, or 20 lbs. to the foot, it would be 900 lbs. of iron which, at a dark red heat, would be equal to 1050 degrees; we have here two specific elements to guide us in our farther inquiry. The fixed pressure of the steam in this case was 45 lbs. per square inch, the temperature of which would be 275 degrees; substracting this from 1050 degrees, we then find that there are 775 degrees excess of heat in the 900 lbs. of iron. The next item for our consideration is the specific heat of water as compared with iron, which we find would stand thus—namely, that the 775 degrees of excess of heat contained in the 900 lbs. of iron would raise 112 lbs. of water an equal number of degrees, or would convert 120 lbs. of water into steam, the volume of which would be, at 45 lbs. on the inch, equal to 1170 cubic feet, which, upon the former supposition that the steam room was equal to 240 cubic feet, and this previously occupied with steam of 45 lbs to the inch, it follows thence that, were this steam all compressed into the 240 cubic feet, the pressure in the boiler would be 260 lbs. on the square inch; or, in other words, if this 120 lbs. of water were instantly converted into steam it would be very nearly six times the weight of steam the boiler would contain at 45 lbs. per square inch; as it would be found that 24 lbs. of steam, at 45 lbs. on the inch, is in volume nearly 240 cubic feet. The article alluded to in the *Manchester Guardian* assumes very naturally, at first sight, that boiler plates would acquire as much heat from the intense fire generally acting under or in the boiler as would indicate redness in five minutes; yet five minutes would do little towards raising the pressure of the steam from 45 lbs. to 70 lbs. per square inch. This is a very natural conclusion, if the heat were transmitted upwards through the water; but the effect of a heated surface, such as we are considering, is that the heat is above, or at the top of the water, and that the water which absorbs this heat in the production of steam, is that which is carried up by the ebullition of the mass of water below. Now, this is a peculiarity of special importance to notice; for had this heat been conveyed upwards through the mass of water, very much of it would have been absorbed in raising its temperature, and, therefore, would not have been conducive directly for the production of steam; if we suppose the body of water to have been composed of 80 cubic feet, it would not have imparted thereto above 18 degrees, supposing no steam to have been generated. But as this could not take place without the production of steam, if we pass over the lower degree of temperature the water must have attained, we shall then find that the pressure of the steam from this additional temperature would be 59 lbs per square inch, with a temperature of 293 degrees. This would have been the state of the case had the heat been transmitted in this ordinary manner; but being above the water, and as water carries heat downward but very slightly, or in instantaneous cases such as this, may be said not to do so at all; we see that from these varied circumstances a very different result may be anticipated, as the same quantity of heat being applied above the water, and thereby all going to the production of steam, will convert 120 lbs. of water into steam, or give a pressure, under the circumstances supposed, equal to 260 lbs. per square inch, which yet, under ordinary circumstances, would not give 59lbs per square inch; but, to take the case of the boiler being half full of water, we shall then find that this quantity of heat, transmitted in its ordinary manner, would not raise the steam to 52 lbs. pressure per square inch. I do not think it worth while to go into the minute calculations, necessary to determine the exact temperature and pressure which the steam would attain under ordinary circumstances, the calculations I have given being quite sufficient for all practical purposes. We have thence deduced the element *quantity* or *pressure* as arising from the foregoing premises. We yet require the element *time* to arrive at an approximate practical conclusion.

With this view I made the following experiments, to ascertain what quantity of water any given surface of hot iron would convert into steam in a given time, at heats commencing with a rather dark red, by daylight, and in descending to about 500 degrees, again commencing with 500 degrees, and descending to the temperature at which the water ceased to boil. In the first experiment I found 3 ounces of water was converted into steam in 30 seconds, by 12 square inches of surface; and, in the second experiment, the same quantity of water was converted into steam in 80 seconds; taking this as our data to determine the time requisite for the conversion of the above stated 120 lbs. of water into steam, we find that, according to the first experiment, it would require 36 seconds, and, according to the last it would require 95 seconds. Without insisting upon the absolute accuracy of these experiments—though I conducted them with much care, and repeated them many times—yet, for practical purposes, they are not unworthy of reliance. I may add, that I took precaution against the water passing away without being converted into steam; this I effected by covering the vessel so heated with very fine wire gauze, and by testing the steam passing therethrough as to its dryness with the hand, when scarce any indication of moisture was perceptible. I would further observe, that the surface of the iron was oxidated, and somewhat rough; therefore not unlike the interior of boilers. We have here, as I think not only a probable cause of at least the greater part of boiler explosions, which is at once conformable with all we know of the abstract principles of the subject, and most supported by observation and practical exemplification, nor is it a cause at all unequal to the worst effects of the kind that take place, as we see the pressure is very great and the time so short, that both safety valve and engine may be unequal to the relief of the boiler ere it be too late.

[*To be continued in next week's Mining Journal.*]

LITHOGRAPHY.—Messrs. MACLURE, MACDONALD, and MACGREGOR, GENERAL LITHOGRAPHERS, beg to call attention to a peculiar feature in their system of conducting business—namely, their having a large and permanent staff of assistants, in all the varied departments of the art, *on the premises*; which arrangement, they submit, gives a force and effect to immediate production unattainable by other means, and which is obviously of great advantage to those who may require their services, independent altogether of the excellency of their work.

London Establishment—Saville House, 6, Leicester-square.
Liverpool Establishment—18, Fenwick-street.
Glasgow Establishment—57, Buchanan-street.

Vacancies for two pupils—one in the writing, the other in the artistical department.

THE SOCIETY

FOR THE ENCOURAGEMENT OF

ARTS, MANUFACTURES, AND COMMERCE.

President,

HIS ROYAL HIGHNESS PRINCE ALBERT, D.C.L. F.R.S. &c.

LIST OF SPECIAL PREMIUMS: Session 92nd, 1846.

UNDER the New Rules and Regulations, which have been adopted by the Society during the present Session, for the renovation of the working constitution of the Society and the more efficient promotion of its objects, the Council have recommended, and the Society has adopted, the following list of Premiums, approved by the Special Committees of the different Sections of the Society, and they are now offered for public competition:—

I.

In the SECTIONS of AGRICULTURE and CHEMISTRY.

A PRIZE OF ONE HUNDRED GUINEAS,
For the Invention of a mixture of materials for a wholesome, nutritious, and palatable Bread, to be sold at a low price and used as an economical substitute for wheaten bread, biscuit, or potatoes. The materials suggested are sago, rye, wheat, maize, barley, beans, peas, oats, rice, beet-root, parsnips, &c. To be given in on or before the 18th of April, 1846.

II.

In the SECTION of FINE ARTS.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Model of an Earthenware Jug, in one colour, to contain a Quart, with a Cover.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Model of an Earthenware Mug, in one colour, to contain a Pint, without a Cover.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Design or Model of the Cover of a Bible, 8¼ inches by 12, to be executed in relief, in raised leather or in wood, either by the new process of burning or by the carving machine.

A PRIZE OF FIFTEEN GUINEAS, WITH THE SOCIETY'S MEDAL.
For a Water-Colour Drawing, 8¼ inches by 12 inches, of a Holy Family, suitable for engraving in wood, and specially prepared for printing in colours by wood blocks,—the object being to produce, at a cheap rate, a good picture, which may find its way into humble dwellings.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a small Geometrical Pattern for a cheap Kidderminster Carpet and Stamped Drugget.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the cheapest and most beautiful pattern of Mosaic or Tile Flooring, one yard square.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a Design of the most convenient, elegant, and cheap Washing-stand, Basin, and Ewer.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the Model of a Tea Urn of a small size.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For Models of a plain and cheap Earthenware Tea Service, in one colour, consisting of Tea-pot, Basin, Milk-jug, Cup and Saucer, and Plate.

III.

In the SECTION of MECHANICS and MECHANICAL ARTS.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a simple and good method of applying Steam Power, directly, to propelling Vessels by the Screw.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For an improved Meter, applicable to measuring the quantity or volume of liquids passing through pipes under pressure on both sides.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For an improved Landing Pier, for embarking and landing Passengers, &c. by Steam-boats on Tidal Rivers.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a portable and compact Machine for Raising and Lowering Heavy Articles from Carts while standing on the streets.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For a Horse Shoe, adapted to the several kinds of pavement now in use.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For an Improved Method of Preventing the Emission of Noxious Vapours from the Gratings of Sewers; which shall permit a free passage of the sewerage, and provide against bursting the drains.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For effective Ventilation of Ordinary Rooms, without cold currents or complex apparatus.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a method of providing against injury and accident produced by the Noxious Vapours of Fusees and Explosions in Mining and Tunnelling, by means of improved ventilating apparatus or otherwise.

A PRIZE OF TEN GUINEAS, AND THE SOCIETY'S MEDAL,
For a Mechanical Contrivance for "Coal Whipping," to supersede the necessity of men nearly naked destroying their health and shortening their lives by hoisting coals from vessels on the river.

IV.

In the SECTION of MANUFACTURES.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the best application of Glass to the construction of Water-pipes, Tiles, and Drains.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For the invention and application of a Cheaper kind of Glass than any now in use.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the best Machine for Cutting Wood into given forms.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the best Imitation of Ivory, in Plaster Composition, for Models and Sculpture.

A PRIZE OF FIVE GUINEAS, WITH THE SOCIETY'S MEDAL,
For the most elegant Design for a Stamped Table-cover in Woollen Materials.

A PRIZE OF TEN GUINEAS, WITH THE SOCIETY'S MEDAL,
For a method of Printing in Distemper by Blocks, so as to "keep register" more perfectly, and produce finer specimens of art in Paper Hangings than by the ordinary methods.

V.

In the SECTION of COLONIES and TRADE.

THE SOCIETY'S GOLD MEDAL,
For the best applications of Machinery, as a substitute for manual labour, in the various processes of Cultivation and Manufacture of Sugar, Cotton, and Coffee in our West India Colonies and the Mauritius.

THE GOLD ISIS MEDAL,
For the invention or importation of any Material, the produce of our Colonies, as a substitute for Hemp or Flax.

The object to be attained by these Prizes is generally sufficiently obvious, the encouragement of ingenuity and talent by publicity and distinction, the direction of invention to the most useful purposes, and the wider diffusion of taste and knowledge in objects of Arts and improved Manufactures is the object generally of the exertions of the Society.

The Prize for the mixture of ingredients for a wholesome and nutritious bread is the suggestion of a benevolent individual, who has contributed largely to the Prize Fund of the Society. It is peculiarly applicable to the present wants of the people, when the coarser kinds of grain and other food are required to be used for the supply of deficiencies in the usual crops; and it is believed that an article much more nutritious than potatoes, and equally palatable, may be obtained by a mixture of wholesome but cheap materials at a price less than half that of ordinary bread.

The Prizes in the Fine Arts are intended to promote the diffusion of a love for the symmetrical and the beautiful, by supplying in cheap materials, of elegant forms, objects suited to the familiar uses of every-day life. It is required, therefore, of competitors, that the forms chosen be distinguished by simplicity in their beauty, and by facility of execution in cheap materials, so as to be sold at low prices for general use. The Designs rewarded to become the property of the Society. The name of the contributor should be enclosed in a sealed envelope, with a motto or device on the outside. The objects of the remaining Prizes require no explanation.

NOTICE.

Candidates are requested to observe, that if the means by which any of the proposed objects are effected should be found to occasion an increase of expenditure or labour unsuited to general purposes, the Society will not consider themselves bound to give the offered reward. They expressly reserve the power, in all cases, of giving such part only of any premium as the performance shall be adjudged to deserve, or of withholding the whole. The candidates, however, are assured that the Society will judge liberally of their claims.

All Communications, Drawings, and Models designed for competition must be delivered to the Secretary of the Society of Arts, at the Society's Rooms, John Street, Adelphi, postage and carriage free, on or before the 15th of May, 1846.

EXTRAORDINARY CONTRIBUTIONS.

The following Extraordinary Contributions have been generously offered to the Council for the promotion of the objects of the Society under the New Rules and Regulations, for furthering the increased usefulness of the Society, for extending the lists of Premiums, for assisting to obtain a Charter, and for the other objects named in the Address of the Council, recently circulated among the Members.

TO THE SPECIAL PRIZE FUND.			
A. B.	£150	0	0
C. D.	50	0	0
		£200	0 0

GENERAL DONATIONS.			
Thomas Lewis	£25	0	0
John Penn	10	10	0
		£35	10 0

LOAN FUND OF £1000.			
T. Webster	£50	0	0
W. F. Cooke	50	0	0
F. Whishaw	50	0	0
F. Spicer	50	0	0
J. S. Russell	50	0	0
G. T. Kemp	50	0	0
Sir L. Goldsmid, Bart.	50	0	0
R. Stephenson	50	0	0
A. A. Croll	10	10	0
		£410	0 0

INCREASED SUBSCRIPTIONS.			
C. Holtzapfel	£5	5	0
G. Bailey	5	0	0
P. Vaughan	5	0	0
W. H. Power	5	0	0
W. F. Cooke	5	0	0
T. Winkworth	5	0	0

B. Albano	5	0	0
A. Walt	5	0	0
W. Everett	5	0	0
T. Davison	5	5	0
J. Horton	5	5	0
W. N. Campbell	5	0	0
H. M. Seilly	5	0	0
J. Reeves	5	0	0
L. H. Petit	5	0	0
J. Wood	5	0	0
A. A. Croll	5	0	0
M. Aron	5	0	0
		£113	5 0
		£759	15 0

The Supplementary List will be published at an early date.

PROGRESS OF FRENCH MINING INDUSTRY.

[FROM OUR PARIS CORRESPONDENT.]

Reference was made, in a recent sitting of the Chamber of Deputies, to the gigantic amalgamation of all the coal mine companies in the neighbourhood of the Loire. The Minister of Public Works requested that the matter might be postponed until Saturday next, when he promised to be prepared to answer any questions that might be put, and to state what course the Government intended to pursue. Some time ago the Minister sent one of the engineers of mines to examine into the affair, and to report to him upon it; and it has since been pretty generally asserted, that he entertains most decided objections to the amalgamation of the companies, and will not permit it to stand.

More companies, for extending the operations of mining and forge establishments, or for opening new ones, have sprung into existence during the past week. A complete revolution is in progress in the iron industry of France. The railways have caused such an immense demand for iron, that the ironmasters have been compelled to tax their energies to the utmost, under pain of seeing the foreigner called upon to meet the supply. They will do great things no doubt; but, after all, as I have repeatedly said, it is not likely that they will be able to keep pace with the gigantic requirements of the railways. Still they have a glorious prospect before them. With such an extraordinary demand for the material in which they deal, they cannot fail to become excessively wealthy. Before the railways took their present developments, the ironmasters were obtaining immense profits from their works; at present it is not improbable that the profits will be doubled, or trebled. I call the attention of your monied readers to the iron establishments now being formed, or enlarged, in this country. As a means of investment for capital, nothing, in my humble opinion, can be better—few things so good. Many Englishmen are largely interested in works established years ago, and they have had reason to rejoice at such an employment of their money; but, at present, the advantages are much greater than they were.

The *Conseil des Prud' Hommes* for metals has just proceeded to the annual election of its officers. In the 11 months that it has existed, it has arranged not less than 1400 affairs, without cost or delay. The success of this institution has been so great, that it is proposed to extend it to other branches of trade and manufacture. The persons engaged in the metal trade speak of it in the highest terms.

M. de Rothschild has, it appears, lately become largely interested in several extensive mining properties in Belgium. His recent visit to that country was to examine his new acquisitions, and to make arrangements for having them efficiently worked.

Algiers letters again speak of discoveries of coal mines in the neighbourhood of Bone; but, after the numerous contradictions given to such assertions, it is impossible to place the slightest credit in them. Considering the minute investigations that have been made in every nook and cranny of Algiers for many years past, it is not to be doubted that, if coal had existed at all, it would have been discovered long ago. Without coal or wood Algiers can never become a great source of mineral wealth, notwithstanding its possessions of iron, copper, and lead: for the expense of bringing the ore to France to be worked will be greater than it is worth.

Among the companies which have lately increased their capital, with the view of extending their operations, is that called *Société des Forges et Usines de Busse Indre*. For the future, there will be 4910 shares of 500 francs, representing a capital of 2,255,000 francs, or 92,000*l*.

The partisans of free trade appear to be increasing in numbers and influence. Many newspapers and reviews of Paris and the provinces, have declared in favour of their principles. The truth is evidently beginning to dawn upon the public, that it is neither wise nor good for a country to naturalise industries for which Nature has afforded no advantages—that, for instance, it would be better for France to devote all her energies to the cultivation of the vine, the improvement of her silks, and other industries, peculiarly her own, and to leave to England to supply her with iron and coal, and machines and other products of her peculiar industry. But the progress of truth is slow everywhere, especially in France—more especially still of such a truth, so contrary to the interests of a great, wealthy, and powerful class. Still it will prevail. In 10 years, according to a great authority, France will have adopted free trade principles. May the prediction be verified!

Nothing new has occurred in the proposed reduction of the duties on iron for shipbuilding. No doubt the Minister of Commerce will very shortly present to the Chambers a bill for carrying the reduction into effect, and no doubt also the Chambers will adopt it, in spite of all the clamours of the monopolist party. Surprise is expressed that the Minister should have delayed the presentation of this measure so long. There is a most imperative necessity for it—the merchant marine becoming more and more feeble every day.

In railway matters there is nothing of much importance. The adjudication of the Lyons and Avignon Railway has not, up the time I write, been announced, notwithstanding it is expected with so much impatience. Many companies have been found to obtain the concession, and it is not at all improbable that others may be conceded. The opening of the Orleans and Tours Railway is fixed for the 23d instant; that of the great Northern Line, as far as Amiens, for the 15th April. For the Bordeaux and Cette Railway several companies are in existence, but not so many as might have been expected—owing, undoubtedly, to the belief that the Minister of Public Works may propose to dispose of it by *concession directe*.

THE SALT TRADE IN FRANCE.—We have before alluded to the numerous petitions presented for years past to the French Government by the merchants, agriculturalists, and manufacturers generally, praying that a reduction in the tax on salt might be adopted by the Ministers of Finance and Commerce. The tax has been partially lowered on salt for agricultural purposes, under certain restrictions or amalgamation, which renders it unfit for general use, and we are sorry to see that the Government persists in still upholding this obnoxious monopoly. The Paris press has warmly taken up the subject, demonstrating to the Government the benefits that commerce, agriculture, mining, and the public at large, have derived in England, by the repeal of this arbitrary impost on so necessary an article. Although the revenue derived a far greater amount in this country by the tax than in France, we abolished it *in toto*; and the trade in salt has increased most rapidly of late years, giving employment to a vast number of the poor and industrious population of Cheshire, Worcestershire, Gloucestershire, and other salt mining counties. Our commercial exports from Liverpool, &c., to India and China, and particularly the great improvements that have been made in our agricultural districts, by employing it as manure, enhancing the value of the land and the crops by more than one-half, which clearly proves the benefits that all classes derive by *no tax* being imposed in a free and great commercial nation like England upon so valuable a produce. His Majesty Leopold of Belgium, the King of Holland, as well as the Governments of Germany, who have the salt trade in their hands, have found it necessary to levy but a very moderate tax upon salt, which has been the means of greatly increasing the curing of fish and meat, in which an extensive traffic is carried on annually, not only for home consumption, but exportation, and the supplying of the shipping. There is very little doubt that, in consequence of the progress making in the free trade principle and low duties among all classes in France, the Government will see the prudence of not persisting in keeping up a monopoly that is most obnoxious to the nation at large. The following ordonnance has been issued respecting salt for agricultural purposes, of which we give an extract:—"Art. 1. The tax upon salt, formerly of 3d. per kilo, or 2 lbs., is now reduced to ½d. on that intended for the feeding of cattle, on condition that it shall be mixed at the expense of the parties, at their option, in the following proportions:—First mixture: for every 10 lbs., five quarts of water, and two hectolitres, or 80 lbs., of common bran, or mixed with chaff.—Second mixture: for 20 lbs., 10 quarts of water, 8 lbs. of meal of oil cake, and 80 lbs. of common bran, or mixed with chaff.—The above mixtures must be made under the inspection of the Custom-house officers or excise, in the depot warehouses which may be established. Special depots of salt, coming under the duty of five centimes, can be authorised in all the communes, or districts, where there may be an office of customs, or resident officers of excise. Every individual, who, according to the law of 17th Dec., 1814, may wish to establish one of these depots, must make the request in writing to the Director of Customs, or the Excise, announcing a convenient locality as a warehouse for the mixing of it. He must also enter into a due security, under the penalties imposed by the law of the 17th June, 1840, and to comply with all the requisitions of the agents of the Customs or Excise, with respect to the quantity of salt in depot. The salt cannot be forwarded to the said warehouses unless accompanied by a signed permit and security, according to the ordonnance of the 26th June, 1841. These warehouses shall be kept under double lock and key by the depositors, and the Custom or Excise officers, who will keep a regular account of the stock coming in and going out, which will remain in hand, sealed, until there shall be a delivery made after mixture. The depositors shall be bound to furnish workmen, and all the necessary utensils for the weighing and measuring of the materials required for mixing. Any violation of this ordonnance, will incur the parties to the punishment and fines decreed by the law of the 17th June, 1840." We give the above as showing the importance the French Government places on the salt trade, and shall refer to the subject at a future period.

THE BRITISH SALT TRADE WITH INDIA.—We have before remarked on the rapid progress making in the manufacture of salt in Cheshire and other counties, which now forms one of the principal branches of their national and commercial industry. The white salt proprietors have for many years been most oppressed by the East India Company and their *employés* in the different presidencies, by the exaction of, next to prohibitory, duties, on its importation from this country, so that they might have the exclusive monopoly in their own hands, and that of a very inferior quality, and at an enormous price. Many representations have been made to the *liberal*-minded directors of Leadenhall-street by the white salt manufacturers, on the injustice practised towards them, and British industry, by this impost, praying for its reduction. Promises have been made for a long time that their grievances should be attended to, and that even dispatches had been sent out to the authorities of the different presidencies of Bombay, Madras, Bengal, as well as to Calcutta—the Liverpool of India—for a full report on the subject of the production of native salt in our eastern empire, so that their case should be duly considered by the board in London, and justice done them, if not by admitting it *free*—at least, at an *ad valorem* moderate duty. These hopes of redress have been the consequence of large shipments having been made from this country to India during the past year, which have nearly overstocked the market, but prices are shortly likely to improve again. We have so high an opinion of the East India Company, that we expect the directors will shortly announce to the white salt proprietors, or manufacturers, what decision they have come to on so important a subject to English mineral commercial intercourse with India, and prove themselves not to be the monopolists they are unfortunately considered to be.

THE NEWLY DISCOVERED QUICKSILVER MINE IN TUSCANY.—This mine, which was discovered last year at Ripa, near Pietra-Santa, in Tuscany, is most flourishing, being extremely rich, and productive of mercury. There are three galleries cut on the side of the mountain, all leading to the bed, and there will be, in the course of the present year, no less than 200 miners at work, who, it is expected, will be able to extract at least 120 lbs. to 140 lbs. each of first-rate ore, as it has been analysed by Signor Tarigionitozetti, of Florence, and yielded, on an average, 200 per cent. The mercury of Ripa presents itself in a state of sulphur or red lead, and is spread in veins of a rock, called *falesshile*. It forms small sinews, or lines, interrupted by veins of another description in the rock, and in the richest parts the entire mass is like jasper. Several portions of crystal are found, but in small quantities, at a few inches deep, and are easily detached from the remainder of the other parts, and are quite brittle. It is a rather extraordinary mineral phenomenon that, besides the above, there are only two other quicksilver mines in Europe that are worked—that of the Almaden, leased by the opulent banking-hone of Rothschild; and that of Idria, in the province of Carniole, in Austria, belonging to the Emperor. Quicksilver is of the greatest importance to the miners in Mexico, and the whole of South America, for amalgamating the ores, and, unfortunately, they are obliged to resort to Europe for it, and at exorbitant prices. There exists over quicksilver a most oppressing monopoly, and it is to be hoped that in a few years hence that either some chemical discovery will be made, to dispense with it, or that it will be found in South America sufficiently to meet the demands of our miners, as it is well known that there are several rich beds of quicksilver existing, but have not yet been worked.

THE CROYDON ATMOSPHERIC RAILWAY.—The following is the report of Mr. Samuda, on the progress and present condition of the experimental works, as presented to the meeting of the London and Croydon shareholders on Tuesday:—"In addition to the atmospheric line from Croydon to Forest-hill, which was opened for public traffic on the 19th January, the works up the New Cross incline, from the first bridge below New Cross to the Forest-hill station, are completed, and experimental trains have been run over this distance. Vacuum tubes and apparatus for a further portion (about five miles) are prepared, and in readiness to be laid immediately the board is ready to receive them. The working of the public traffic has been regular and satisfactory, with some few exceptions; interruptions have arisen—1. From the breakage of the crank-axles and connecting-rods of the steam-engines. 2. From the peculiar description of valves employed in the vacuum pumps. 3. From the temporary arrangements at the sidings; and, 4. Some slight delay has in two instances occurred, from the line requiring more power than it could obtain—one-half of the engine-power at two out of three of the engine-houses being at the time unavailable. In this latter case, the only inconvenience that resulted was, that a few trains proceeded at a decreased rate, and arrived from 10 to 15 minutes behind time. The engine-makers have now substituted wrought-iron for cast in five out of six of the broken crank shafts, and they will make a similar exchange of material in the connecting-rods and such other parts of the engines as require it, as soon as the new work can be prepared. Air-pump valves, of the construction which we have practically found to be efficient, are also in course of preparation, in lieu of the present ones. Some time must elapse before these alterations can be carried into effect; and until then I cannot but feel apprehensive that what has occurred may recur, though I hope such may not be the case; for I believe the engine-makers will use every exertion to get them finished with as little delay as possible—and the regular working of the engines may be relied on when they are completed. With these exceptions, nothing can have been more satisfactory than the results obtained. The men each day become better acquainted with their respective duties, and a manifest improvement in the execution of them is the result. The facilities of managing the apparatus—regulating the speed of the trains—obtaining the power—exchanging the trains from locomotive to atmospheric traction—working a single atmospheric line (and that in conjunction with, and in continuation of, a double locomotive railway)—have now practically been demonstrated to be in all cases equal to our expectations, and in some have surpassed the anticipations to which we gave expression."

ON THE EFFECT OF PLATINUM AND SILVER ON THE LUMINOSITY OF PHOSPHORUS.—A paper on this subject was read at the Chemical Society, on Monday last, by Prof. Schœnbein. From the experiments of the professor, it appears that phosphorus is never luminous when the evolution of ozone is prevented. Thus, for example, under ordinary circumstances, phosphorus is not luminous at a temperature much below that of the atmosphere. But even under such circumstances, an electrical discharge will induce the evolution of ozone, and then the phosphorus instantly is rendered luminous, and the phenomena of this luminosity are stated to be exceedingly beautiful—in some cases representing, in miniature, the tails of comets. Ozone is destroyed by certain gases and vapours—as, for example, olefiant gas and the vapour of ether; and, if phosphorus be exposed to air mixed with a small proportion of either, it will not be luminous. Prof. Schœnbein, having observed that platinum in a minute state of division, like the electrical discharge, would decompose iodide of potassium, and produce other similar effects, was induced to try whether it would also affect the luminosity of phosphorus. A piece of that substance was placed on a watch glass, subjected to a degree of cold four degrees below the zero of Reaumur. It was not luminous; but immediately that a little spongy platinum was brought into contact with it, its luminosity was restored. Spongy silver obtained from the acetate of that metal produced the same effect. Antimony, iridium, and bismuth, had no effect,—the other metals were not tried. Dr. Leeson next communicated to the society a new system of classification of crystals. All crystals, according to this method, are divided into three classes: first,—all in which the angles are right angles, which are denominated rectangular; secondly,—those in which there is 1 right angle and 2 at an oblique angle, called right oblique; and, thirdly,—those in which all the angles are oblique, termed oblique. Each of these classes are subdivided into three genera: namely, the equiaxial, or those in which all the axes are equal; the binequiaxial, where two axes are equal, and one is not; and the inequiaxial, in which none of the axes are equal. They are further subdivided into seven species, from the position of the planes. Dr. Leeson entered into full details on the subject, illustrating it by some excellent models of crystals. The last paper read was a communication from Hamburgh, on a new mineral, to which the author was desirous of giving the name of struvite. Large crystals of this mineral were found in digging the foundation for a new church in that city. They appeared from examination to be produced by the effect of ammonia on phosphoric acid. This mineral was discovered, some few months back, in guano, and the term guanite was then given to it.

NORTH KENT RAILWAY.—Yesterday evening a meeting of inhabitants of the parish of St. Mary, Newington, convened by the churchwardens, was held at the school-room, Mr. Hemans in the chair, when resolutions were passed against this line, as calculated to injure the property of the parish.

METALLURGIC TREATMENT OF GOLD AND SILVER IN HUNGARY AND TRANSYLVANIA.—No. III.

The furnace of Offenbanya incloses four half high furnaces of the same dimensions and similar section, with two chimneys; their height, from the bottom of the base, is 16 feet; they are 3 feet in diameter at the bottom, 3½ feet at the height of the chimneys, which are placed laterally, as regards one another, at 5 feet above the bottom. As far as regards the crucible, the chambers of condensation, utensils, &c., they do not differ in any way from those adopted in Hungary. At Zalathna they make use of high furnaces, of 20 feet, for the rough cast metals, and for those of imbibition half high furnaces; the concentration is performed indiscriminately in the one or the other. The blowing machines at Offenbanya give a damp air, and very little compressed, but no inconvenience arises in its working. At Zalathna they employ square wooden cases, and it is considered that 700 cubic feet is the quantity of air thrown into a furnace for cast metal; for the other two operations, it is reduced from 600 to 650 at the most. The working of the furnaces, be what description they may, four men are required, two workmen and two assistants; they work for 12 hours, and are paid according to the quantity of ores they melt. The furnace of Offenbanya consumes as fuel fir wood, which is floated down the Arnyos, from the forests of Topanfalva, and which is carbonised at the furnace. At Zalathna, they employ charcoal made from oak and elm, which is burnt in the forests that adjoin the town. This is mentioned solely to explain the difference which exists in the consumption of these two furnaces. The rough cast metal is certainly that of all the operations which constitute the treatment of gold and silver ores, the execution of which is the most delicate, as it is requisite in this cast metal to concentrate in a small quantity of mats, nearly the whole quantity of the precious metals disseminated in an enormous mass of sterile substances, and only to produce a worthless matter so poor, that it may be thrown away without any loss. They have, therefore, great interest in submitting to this operation, the greatest possible portion of the total mass of the ores, as this method is not adapted to re-melting.

In Lower Hungary, where gold enters for some thousandth parts in the quantity of silver at the present day, they work the rough ore, containing as far as 2½ loths to the cwt. In Transylvania, where the fine silver marc contains 40 deniers of gold, on an average the maximum standard of the crude cast metal is 8 deniers, or only half a loth, but, by the new regulations, the rough *mat* should scarcely contain beyond a loth of gold or silver. They now fix the quantity of mats to be produced, and, according to its standard, the mass more or less combined with the addition of pyrites; these introduce in the bottom of the fusion a small portion of gold and silver. It is indispensable that the dross should be in a fluid state, so that their separation from the mat should be clear, so that the losses of gold by infiltration is as small as possible. They obtain it by these means—1. In giving to the furnace a warm heat. 2. By the addition of calcareous matter and dross, which can be tested by imbibition, by putting a considerable quantity into it. This dross is very often an excellent melting substance, being generally sub-silicates, or, at most, simple silicates, which, in the crude metal, becomes transformed, when in contact with quartzous or bisilicatious ores, but there is, however, great inconvenience, in consequence of the expense of fuel, and the losses. It would be better as Jars and Duhamel proposed, as they do at present at Nagy-Banya, to completely abolish the addition of *scories* or dross, and replace it by broiled pyrites. It is rather unfortunate that the mines of Nagyag are so distant from Zalathna, as the common calcareous could be replaced with greater advantage by carbonate of manganese.

The following is the *resumé* of the amalgamations in melting at Offenbanya—namely, 188 portions; and at Zalathna, 244 portions. The ore is loaded by certain portions from 30 to 40 lbs., which are uniformly divided throughout the whole section of the furnace. The interval which takes place between the running of the metal, varies greatly with the pyritous nature of the fusion bed; generally speaking, they try every three or four hours alternately in each of the receiving crucibles; the *mat* is drawn out, and so as to render it more suitable for the broiling, which it has to undergo afterwards, they try to get it as thin as possible. At Offenbanya, there are 55 cwts. at the bottom of the fusion passed every 24 hours, consuming 100 cwts., and 720 cubic feet of coal. At Zalathna, they melt from 70 to 80 cwts. in the same time, but the consumption of fuel is far less; not exceeding 450 cubic feet. This can be explained by the employment of high furnaces and the nature of the fuel. The quantity of lead employed in the disargentification is very limited, and does not exceed beyond 3 per cent. in the mixture of the different ores; in Hungary it was 30 per cent. They melt at the same time in the outer crucible 1½ cwt. of lead under coal; as soon as it is melted, they then pierce the *mats*, which run on to the lead; the workman then stirs the liquid with an iron scoop, so as to facilitate the contact between the metals and the disorganisation, and does not discontinue till the *mat* is nearly becoming solidified. The average quantity of ore melted and schlichs during the 24 hours is 45 to 50 cwts., consuming from 800 to 900 cubic feet of coal. The loss in lead is very considerable, relatively to the manner this metal is required in many operations, which amounts to one-sixth of the total quantity melted in the exterior basin—therefore, of three parts of the poor lead, which ought to act on the *mats*, they get back 2½ portions of trade lead.

At Zalathna they divide the rich ores, of more than 20 deniers, in two categories. The first are similar to those treated at Offenbanya, with the exception of the *Schrifterz*, in which there is no lead and very little gold. In the second are arranged all the plombiferous ores, and those very rich in gold, which are very common in this district. The first is submitted to imbibition by cast metal. The ores of the second-class generally undergo a complete melting by lead, and to this fusion is added a large quantity of litharge, the dross of coppel, galena, &c., as the proportion of lead contained in the ores would completely pass into the mats without this addition, which has, above all, determined them to adopt this mode of disargentation, as the presence of gold is in a large portion in the ores. It would be very difficult to extract even the smallest traces of it by the old method of imbibition, even should it undergo the operation several times. The mixed imbibition is generally adopted at Zalathna in the gold ores, and is particularly applied to the rich ores of Nagyag. To accomplish this, they combine with the melting mixtures the greatest portion possible of plombiferous materials, from which there results a residue of working lead and very rich mats, which are imbibed in coming out from the furnace in the pierced crucible. This imbibition is performed in various ways, sometimes they allow the lead and the mat to run together into one of the exterior basons, where they have placed a certain quantity of broken litharge, and sometimes they make use of the two basins. The following is an example of the melting by lead, and that of the mixed method:—

Melting by Lead.—Gold and silver ore, 40 parts; telluriferous ores of Nagyag, 8; ores of concentration, under 20 deniers, 49; copper ores, rich in gold, 2; plombiferous, 1; broiled mats of concentration, 28; ditto, of a rich imbibition, 70; dross of coppel, 3; litharge, 17; calcareous, 24; argillaceous, 1. The proportion of lead contained in the different elements of mixing is such, that the working, or trade, lead produced contains 32 to 36 loths of gold and silver, which brings it to 100 or 120 portions of lead for one of silver.

[*To be concluded in next week's Mining Journal.*]

THE NEW RAILWAY PROJECTS OF THE OLD COMPANIES.—The old companies, no doubt to secure possession of the ground which they consider their own, have vied with new projectors in their applications to Parliament for powers to construct new lines; as the following statement will shew:—

Name of Company.	No. of Bills now before Parliament.	Length of miles.	Capital.
Caledonian	9	180	£2,500,000
Eastern Counties	8	270	5,670,000
Grand Junction	7	86	2,680,000
London and South-Western	6	78	2,100,000
London and Birmingham	8	39	1,050,000
Midlands	11	200	3,800,000
South-Eastern	10	400	9,200,000

This is exclusive of minor extensions and of purchases, leases, and amalgamations, involving the transference or management by the whole of the old companies, of upwards of 40,000,000*l*. sterling additional.—*Manchester Examiner*.

The Ely and Peterborough Railway is now in rapid progress, and will be opened during the ensuing summer, probably in June. There are 3400 men employed, 700 waggons, 286 horses, and 4 locomotives.

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